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I.—PREFATORY REMARKS.

BY THE EDITOR.

WITH the present number, MIND makes a fresh start under new editorship. This change involves no real breach of continuity. The leading external features of the old series will be retained in the new. In this respect there are only two minor differences worth noting. In the first place, we propose to give regularly full notices of the more important articles in foreign periodicals, such as appeared in the early numbers of the old series, but were afterwards discontinued. In the next place, we hope to be able to introduce, somewhat more frequently than in the past, reports by specialists of current work in their several departments.

We shall endeavour to imitate the catholicity and impartiality which characterised the conduct of MIND under its late genial and many-sided editor. Our ideal is to make it an organ for the expression of all that is most original and valuable in current English thought, without predilection for any special school or any special department of Philosophy or Psychology. What is of prime importance

to us is that our pages shall be filled with genuine work to the exclusion of merely dilettante productions. In general, we desire to publish only such articles as really advance the subject of which they treat a step further. Nor ought this to be considered an extravagant aim for the only English philosophical journal in existence. But it is certain that we must fall lamentably short of our ideal unless we receive the hearty sympathy and assistance of professional students of philosophy, who have now, we hope, reached such a degree of mutual understanding as to render co-operation more easy and discussion more fruitful than they could be when MIND was first started—a result to which MIND itself has in large measure contributed.

## II.—THE LOGICAL CALCULUS. I. GENERAL PRINCIPLES.

By W. E. JOHNSON.

§ 1. *Principles of a Symbolic Calculus.* As a material machine is an instrument for economising the exertion of force, so a symbolic calculus is an instrument for economising the exertion of intelligence. And, employing the same analogy, the more perfect the calculus, the smaller would be the amount of intelligence applied as compared with the results produced. But as the exertion of *some* force is necessary for working the machine, so the exertion of *some* intelligence is necessary for working the calculus. It is then important to examine the kind and degree of intelligence that are demanded in the employment of any symbolic calculus. It will appear that the *logical* calculus stands in a unique relation to intelligence; for it aims at exhibiting, in a non-intelligent form, those same intelligent principles that are actually required for working it.

To some critics this characteristic would appear a ground of condemnation from the outset. Certainly the unique position of the Logical Calculus—which seems to be trying to reduce intelligence to non-intelligence—demands very careful treatment, if we are to avoid a purely sterile or circular exhibition of the processes of thought.

I will attempt to enumerate briefly what appear to be the principles common to every species of symbolic calculus.  
(1) The symbols must be understood to *represent*—without exhaustively characterising—things other than themselves.  
(2) Each symbol must have a permanent and unambiguous import throughout any connected series of operations. (3)

It must be possible that *different* symbols or combinations of symbols may represent the *same identical* thing, and that (4) symbols which represent the same thing may be *substituted* for one another. (5) Statements of equivalence must be understood as having *propositional import*, and (6) the results obtained by substitution must be understood to be *inferences* from the statements of equivalence. (7) This requires also a recognition of the distinction between *universal* and *particular* symbols, and (8) of the principle that a universal symbol may be replaced by any other symbol representing an object in the sphere covered by the universal. And, finally, in order that the replacement of a simple symbol by a complex synthesis of symbols may be valid, we require (9) a recognition of the force of the *bracket*, and (10) the postulate that the synthesis of symbols shall yield a product *homogeneous* with the symbols synthesised. The intelligence demanded in the employment of a symbolic calculus, then, involves a recognition of (1) the Representativeness of Symbols, (2) the convention of Permanence of Import, (3) the possibility of Equivalence, (4) the Method of Substitution, (5) the Propositional Import of Equivalences, (6) the Inferential relation between Equivalences, (7) the distinction between universal and particular symbols, (8) the applicational interpretation of Universals, (9) the force of the Bracket, and (10) the Postulate of Homogeneity.

With regard to (1) the Representativeness of Symbols, it is important to point out that the symbol must be capable (2) of unambiguously indicating its object, although it can never by its own inward construction represent exhaustively the entire characterisation of its object. This combination of unambiguous indication and unexhaustive characterisation is the necessary condition and explanation of the possibility (3) that *different* symbols, each of which represents a different aspect or mode of indicating its object, may yet refer us to one and the same object. This, then, accounts for the possibility that a system which primarily involves the *conventional* equivalence  $a = a$ , should also have room for the *real* equivalence  $a = b$ . Now these *real* equivalences form the ground for the employment of (4) the Method of Substitution. But to erect this method into the position of the sole principle for arriving at truth, as Jevons does, is an error akin to the old nominalists' fallacy. We require, as basis for arriving at any but mere verbal truth, a knowledge of the axioms which state what syntheses of symbols are equivalent to one another, before any use can be made of

the Method of Substitution. The next four principles, which indicate how the method can be used, are of special importance in an account of Logic. For proposition, inference, universal and particular are the very elements which constitute the science. It is, then, essential to point out that we cannot work any calculus without being conscious that (5) *equations are propositions*, affirming some truth; that (6) from these propositions other equations are *inferred*, wherever we use the symbol ∴ (*therefore*); that (7 and 8) these inferences continually involve the replacement of universal by more particular symbols. Thus, in the equivalence  $(a + b)^2 = a^2 + 2ab + b^2$ , the symbols *a* and *b* are universal, *i.e.*, replaceable by any other symbols of number, but the symbols 2 and + are particular. Further, these replacements often involve the substitution of a *complex* for a *simple* symbol, and this is never legitimate without enclosing the complex in a bracket or using some equivalent convention. The mistakes that beginners in algebra make in this matter are familiar to all teachers of the elements of mathematics. But it is not generally recognised that the principle of correct bracketing plays as important a part in logic as in mathematics. Indeed able logicians seem in this matter to have made mistakes on a level with the schoolboy's mistakes in algebra. Finally we must recognise explicitly that these complex combinations of symbols can only be used in a calculus, if they represent objects in the same *sphere*, and therefore obey the same laws as the simple symbols. The necessity for this Postulate of Homogeneity restricts the range of synthetic systems of symbolism. For, without it, we should never be able to reach formulæ more *complicated* than the initial axioms; and all possibility of a calculus would vanish. Now it is the indefinite increase of *complication* in our results that gives the unique character to a calculus. The "intellectual intuition" which perceives the truth of laws in their simple—but absolutely universal—form is incompetent to perceive the same truths in more complicated forms. A symbolic calculus is an instrument for transcending the limits of intellectual intuition. But all thinking by help of language involves the same principle.<sup>1</sup>

<sup>1</sup> Logical and mathematical symbols are properly *re-representative*. That is, the letters *a*, *b*, *c* . . . are *substitute* signs for words or numbers, which are, in their turn, *expressive* signs for ideas. [See Mr. Stout's article on "Thought and Language" in MIND, April, 1891.] The symbols + and × are, however, simply representative (being mere *synonyms* for ordinary words); that is, they *normally* perform their function in thought only through and by means of attention to their meaning.

We have now explicitly recognised certain of the forms in which intelligence has to be exercised in working a symbolic calculus. We cannot feel sure that all these forms have been exhaustively enumerated. But such explicit enumeration as has been offered will give an indication of the peculiar relation in which the Logical Calculus stands to thought. For the same intelligent principles have to be employed in using the calculus as are non-intelligently developed in its results. This must be admitted once for all as characterising the unique nature of logical symbolism.

§ 2. *The Analysis of System or the Synthesis of Propositions.* The fundamental work of Pure Formal Logic is an investigation into the principles according to which the analysis of a system exhibits it as a synthesis of propositions. The proper procedure of Logic is throughout *analytical*. We must begin with an analysis of system, and determine first how a synthesis of propositions yields a totality of inter-related elements. This primary analysis must be carried so far as to resolve any complex into *propositions* as constituents. It precedes the analysis of propositions into those elements that are not themselves propositions, just as the Physical analysis of a substance into molecules precedes the Chemical analysis of the molecule into atoms. This formal analogy will be found not altogether without value. For some symbolists appear to have introduced confusion by identifying the "Physical" combination of propositions into a system with the "Chemical" combination of subject and predication into a proposition. We can best keep clear of this confusion by first treating the less disputable and more absolutely formal portion of Logic, *viz.*, the synthesis of propositions into a system. This will necessitate an inquiry (A) into the general conception of *synthesis*, and (B) into the general conception of the *proposition*.

§ 3. (A) *With respect to synthesis in general*, we must observe that every mode of combining propositions is expressed by a word belonging to the part of speech called *conjunction*. There are logical and non-logical conjunctions : but, using the term in a logical sense, we may regard every conjunction as expressing some mode of logical synthesis of propositions. Now the fundamental mode of logically combining propositions is represented by the conjunction *and*. This mode of combination is called *par excellence* "conjunction". It will be found that all other purely logical conjunctions depend for their import upon this conjunction alone. It is, therefore, important to give a clear indication of its force. The

relation expressed by *and* is simply the *emptiest* of all relations. It expresses merely the bringing of two propositions together into one system, without subordination or any definable connexion other than is indicated by their being face to face in one and the same system. It is, therefore, the conjunction of *pure synthesis*, presupposed in and underlying all specific syntheses. Its nature will be made more explicit when we come to consider the laws which govern its use. Meanwhile we may notice some common misunderstandings on this subject. When we bring together two propositions *a*, *b*, by means of the conjunction *and*, the result is '*a* and *b*'. Now this result is itself a proposition: *i.e.*, we may predicate of it truth or falsity, and it may be combined with other propositions, in precisely the same way as the (relatively) simple proposition *a*. This is, perhaps, obvious; but logicians have practically neglected or denied it. They would say that '*a* and *b*' does not represent *one* proposition but *two*. But such a view involves a disregard, on the one hand, of the force of bringing the two propositions together; and, on the other hand, of the synthesis that is already implicit in the simpler proposition *a*. For the conception of a *molecular* proposition is purely ideal. Any actual proposition is indefinitely analysable into component propositions somehow synthesised into a unity. Hence an explicit introduction of *and* does not intrinsically affect the character of the proposition, as single or double. On the other hand, it is essential to note the reality of the process involved in bringing two propositions face to face and examining their combined force. This is shown familiarly in the combination of the two premisses of a syllogism. For here some newly apprehended truth is often brought out by the active collision of two truths that have perhaps been long in the possession of the same mind but never contemplated as belonging to the same system. Yet the little particle *and*, which connects the two premisses of a syllogism, has always been neglected and despised, while the particle *if*, which connects the premisses with the conclusion, has received its due attention. We see, then, that the *product* or *resultant* of bringing two propositions together is itself a proposition. The *process* or *operation* of bringing them together may be called *Reasoning*. Hence *Reasoning* should be defined as a process of forming a *Judgment*. The traditional way of explaining the relation between Reasoning and Judgment seems misleading. The difference is simply that between process and product. There is no product beyond the proposition and the system of propositions. The judgment is the final outcome of all logical

thought and process. Reasoning is, then, the process of synthesis—not the synthesised product. The *inferential* mode of synthesis—represented by the conjunction *if*—has been prominent in traditional logic; but a more general view of synthesis is here taken, in which inference will be shown to be dependent on and subordinate to *pure synthesis*.

§ 4. (B) As the conception of system in general is indicated by the conjunction *and*, so the conception of the *proposition in general* (*i.e.*, of the elements whose synthesis constitutes system) is indicated by the particle *not*. A proposition is simply the expression of a truth or falsity. What distinguishes the import of a proposition from any other combination of words is its being of necessity true or false. In affirming one thing, it denies an indefinite number of other things. Hence a proposition faces two ways. The possibility of its formation depends on the conception of its contradictory. On the one hand, a proposition has no meaning for us until we understand what it denies; and, on the other hand, denial and contradiction have no meaning except in reference to propositions. The mere presentation or impression 'blue' does not carry with it any reference to contrary or incompatible presentations: but the affirmation or declaration 'blue!' involves at least some such process as 'Red? no! not-red, but blue'; 'Green? no! not-green, but blue'. This process of bringing up in idea presentations, which are successively rejected, is that out of which the judgment emerges as a victorious claimant. By this reference to a struggle amongst incompatible rivals, and the supremacy of one over the others, the judgment is defined. The usual view of the judgment as connecting a subject with a predicate does not really help us. If we put the terms *man* and *mortal* together we merely get the complex term *mortal man*, not the *proposition*—*man* is mortal. The latter is distinguished from the former by its rejecting from the system of accepted reality the *immortal man*: its power of *affirming* is explicated by reference to what it *denies*. We see, then, that the definition of a proposition as that which expresses a truth or falsity immediately leads to the recognition, along with any one proposition, of that which expresses its falsity. Corresponding to every proposition *a*, there exists its contradictory *not-a*. Here again the exact force of the contradictory relation will be brought out, when we consider the laws regulating the use of the particle *not*.

§ 5. *The Conjunction 'and' and the Particle 'not'*. All that formal logic can do in the way of synthesis of proposi-

tions is contained in the laws regulating the use of these little words *and* and *not*. If this statement is doubted, it may be well to point out that the whole of the vast subject of the Mathematics of Number or Discrete Quantity rests on the fundamental ideas of distinction and addition—represented by the words ‘other than’ and ‘together with’. It is not then remarkable that the sphere of pure logic should be limited to a development of the conceptions of pure synthesis and pure negation. The fundamental laws or axioms that regulate these operations must now be given. It is necessary to premise that the operations relate exclusively to *propositions*—not to terms, or classes, or ideas, or things.

§ 6. *The Fundamental Laws of Propositional Synthesis.* In expressing the axioms, which regulate the synthesis of propositions, we shall require to denote, in some unambiguous way, the following elements : (1) *Propositions*; (2) Pure Synthesis or *Determination*; (3) Pure Negation or *Contradiction*. It will be understood then that *propositions* are represented by *letters*; that *determination* is represented by simple *juxtaposition*; and that (so far as is convenient) *negation* may be represented by a *bar* written over the proposition denied. Before stating the laws it may be as well to recur to the general principles of symbolism. The statement of equivalence (symbolised by  $=$ ) is common to all symbolisms, and use is made of it by the Method of Substitution. The laws which we are about to enunciate are both *universal* and *formal*. By being *universal*, I mean that the equivalences hold whatever propositions the symbols *a*, *b*, &c., may be supposed to stand for. Thus we may *apply* these universal equivalences by replacing the proposition-symbols by any other proposition-symbols (simple or complex). By being *formal*, I mean that the equivalences are stated on the responsibility of Formal Logic—that Formal Logic guarantees their validity.<sup>1</sup> The distinction between Formal and Non-Formal equivalences is of essential importance, but it has been generally neglected or obscured by symbolists. A formal equivalence is not necessarily *universal*, for it may involve *particular* symbols, i.e., symbols for which no other symbol may be substituted, such as 0, 1, 2 . . . in Algebra. Hence the necessity for the distinction between *universal* and *particular* symbols. It may, perhaps,

<sup>1</sup> In Mathematics, formal universal equations are called *identities*. But this name is obviously unsuitable to describe logically formal and universal equivalences.

be pointed out that universal equivalences always contain *some* particular symbols, such as  $+$ ,  $\times$ ,  $-$ ,  $\div$ , *for which no other symbol may be substituted*. Hence it is better to speak of the symbols themselves—not of the equivalences—as being universal or particular. The propositional import of the equivalences having been thus made explicit, we must next note the *inferential* character of our procedure. This is indicated by the “therefore” which precedes the derived equivalences. We need only finally state explicitly that the operation of pure synthesis or pure negation of propositions always yields as its result an *unambiguous proposition*; so that the complex synthesis of symbols obeys the same universal laws as the simple symbols. Thus the Postulate of Homogeneity is explicitly recognised.

There are *five* independent laws, which are necessary and sufficient for propositional synthesis. They are the following :—

- I. The Commutative Law :  $xy = yx$ .
- II. The Associative Law :  $xy.z = x.yz$ .
- III. The Law of Tautology :  $xx = x$ .
- IV. The Law of Reciprocity :  $\bar{\bar{x}} = x$ .
- V. The Law of Dichotomy :  $\bar{x} = \overline{xy} \ \overline{x\bar{y}}$ .

A few words of explanation on each law may be given. But the whole of the explanation that follows is *totally unnecessary for the working of the calculus*. The calculus is only a calculus in so far as the meaning of the letters, of the bar, and of the synthesis of juxtaposition is temporarily forgotten. On the other hand, the remarks, which immediately preceded the enunciation of the laws, *must be understood*. I hope that I have succeeded in making clear the distinction between the minimum of intelligence that is absolutely necessary and the intelligence that is supposed to be laid aside in working the calculus.

§ 7. *Explanation of the Fundamental Laws.* The Commutative Law expresses the principle that the *order of pure synthesis is indifferent*. The *space-order* in which the symbols are written may be taken to indicate the *time-order* in which the corresponding judgments are formed. *Time* is a condition to which thinking is subject. This is a psychological law referring to the *process of thinking*. But the logical law states the principle that the *objects of thought abstract from this condition under which thinking takes place, and are related to one another timelessly*. Again, the Associative Law expresses the principle that the *mode of*

*grouping in pure synthesis is indifferent.* For it is to be observed that each step in the process of synthesising propositions involves *two* elements. This merely exhibits a psychological law of thinking, known as the Law of Duality. But the logical law here affirms that the objects of thought are not restricted in their inter-relations by any limitation to a Duality. Again, then, thought is seen to abstract from the conditions to which thinking is subject. The three remaining laws closely correspond to the three Laws of Thought recognised by Logicians. The first of these—the Law of Tautology—expresses the principle that *the mere repetition of a proposition does not in any way add to or alter its force.* The ordinary form of this law, “Every A is A,” or “If A, then A,” expresses the same principle. Having given the name A, or affirmed the proposition A, a mere repetition of such statement does not affect its assertory force.<sup>1</sup> The import of the judgment is independent of the time, circumstances, or connexions in which it is formed. Its repetition is, therefore, objectively irrelevant. The first three laws, then, form a group of principles which declare that thought is emancipated from the conditions imposed on the thinker. He forms a judgment once, and perhaps again forms the same judgment, or forms another and connects this with the first, and then again forms a third judgment, which he connects with the result of joining the first two. But all this time-process and time-sequence and time-repetition are irrelevant to the import of the objectified judgments. These are timeless, and related timelessly.

The Law of Reciprocity expresses the principle that *the denial of the denial of a proposition is equivalent to its affirmation.* In this principle are included the so-called Laws of Contradiction and Excluded Middle, *viz.*, “If A, then not not-A” and “If-not not-A, then A”. Of course, here denial means *bare* denial or pure contradiction. If in opposition to A we set up some proposition merely incompatible with A, then the denial of this last does not bring us back to A. Other alternatives are possible. The formal contradictory of a positive judgment can never be itself a positive judgment. If the proposed contradictory has any positive element in it, the alternatives are only exhaustive within the positive hypothesis

<sup>1</sup> It should be observed that I distinguish this law of Tautology from the symbolic convention  $a = a$ . The latter is necessarily presupposed in order to give meaning to the former. The latter, again, is a conventional postulate, common to all symbolism; the former is a formal law, exclusively logical.

common to the two. The logical contradictory, therefore, is a mere ideal—never apprehended in itself—which serves as a warning against the error of supposing that any finite number of positive contraries can be exhaustive of all possibility.<sup>1</sup> The Laws of Contradiction and Excluded Middle have the appearance of being merely *verbal*. They seem simply to expound the meaning of *not*. It is, therefore, necessary to show how thought comes to have a meaning for *not*. We shall find the explanation by recurring once more to the process which ends in the formation of a judgment. In this process we detect a *conflict* ending in a *conquest and ejection*. Now the word *not* has really a double signification. Sometimes it refers to the *conflict*, and at other times to the *conquest and ejection*. The laws of Contradiction and Excluded Middle bring these two significations into connexion with one another. "If A, then not not-A" means "The positing of A involves a conquest over and rejection of anything that conflicts with A". The former "not" thus means "rejection of"; the latter means "conflicting with". Again, "If-not not-A, then A" means "The conquest over and rejection of everything that conflicts with A involves the reinstatement of A". As before, the former "not" means "rejection of," and the latter means "conflicting with". The former is the *not* of the *copula*, the latter of the *predicative term*. This explanation will, perhaps, make clearer the statement that the force of a declaration, assertion, or positing is made explicit by reference to denial; and the relation between the two—and thus the real import of a proposition—is finally made explicit by the laws of Contradiction and of Excluded Middle. The doubt, then, whether these laws are not after all merely verbal expositions of 'not' is answered by the reflexion that, were there not any *real* psychological process at the back of the proposition, there would be nothing for 'not' to mean. Granted the reality of the process, the laws may be admitted to be merely verbal. But the foundation of the verbal laws is just this reality of the process.

Lastly, the Law of Dichotomy expresses the principle that *the denial of any proposition is equivalent to the denial of its conjunction with any other proposition together with the denial of its conjunction with the contradictory of that other*

<sup>1</sup> I should maintain that the apparent ultimate antinomies of thought arise always from the attempt to conceive two alternatives by means of some positive idea. The Law of Excluded Middle is used to justify this attempt; but, in fact, it expressly forbids the attempt.

*proposition.* This is a further extension of the Law of Excluded Middle, when applied to the combination of propositions with one another. The denial that  $a$  is conjoined with  $b$  combined with the denial that  $a$  is conjoined with *not*- $b$  is equivalent to the denial of  $a$  absolutely. For, if  $a$  were true, it must be conjoined either with  $b$  or with *not*- $b$ . This law, which (it must be admitted) looks at first a little complicated, is the special instrument of the logical calculus. By its means we may always resolve a proposition into two determinants, or conversely we may compound certain pairs of determinants into a single proposition. In this law we first begin to see the complexity into which the development of our axioms will lead us. In a future paper I hope to show how the whole Boolean Calculus can be derived in a few steps from these laws. But at present I wish to examine more closely the relation between the methods of the calculus and the ordinary forms of speech and thought.

§ 8. *Derivative Modes of Synthesis.* All results attainable by the Logical Calculus are contained in the five fundamental laws which regulate the use of the particles "*and*," "*not*". But the results can be put into more familiar forms, and their relations to ordinary processes of thought can be exhibited by the introduction and definition of new conjunctions and modes of synthesis.

We may, then, observe first that we have two fundamental types of synthesis which can be best denoted by the words *Conjunctive* and *Disjunctive*. Thus, taking two simple propositions  $x, y$ , their conjunction is expressed by  $xy$  and their disjunction by  $\bar{x}\bar{y}$ . These two propositions  $xy$  and  $\bar{x}\bar{y}$  form a contradictory pair. The conjunctive  $xy$  expresses that  $x$  and  $y$  are both true; while the disjunctive  $\bar{x}\bar{y}$  expresses that  $x$  and  $y$  are not both true.<sup>1</sup> The latter must of course be distinguished from the conjunctive  $\bar{x}y$ , which expresses that  $x$  and  $y$  are both not true. Each of these types has four varieties involving  $x, y$ , or their contradictories, *viz.* :-

Conjunctives.

$xy$

$x\bar{y}$

$\bar{x}y$

$\bar{x}\bar{y}$

Disjunctives.

$\bar{x}\bar{y}$

$\bar{x}y$

$\bar{x}y$

$\bar{x}\bar{y}$

<sup>1</sup> The word *disjunctive* is here taken in its natural sense to mean "*dis-joined*," and in direct opposition to *conjunctive*.

The double use of negatives in the Disjunctive varieties is confusing to ordinary intelligence. Hence in popular speech they are expressed in simpler form. Thus the disjunctive  $\bar{x}\bar{y}$  is expressed in the *Hypothetical* form, 'if  $x$ , then  $y$ '. And the disjunctive  $\bar{x}\bar{y}$  is expressed in the *Alternative* form, 'either  $x$  or  $y$ '. In this way ordinary speech dispenses with double negatives. We must add that in this view there is no essential difference in meaning between the Disjunctive, Hypothetical, and Alternative forms, and hence that any proposition of the Disjunctive Type can be expressed indifferently in four different forms. Thus, taking the second variety, the following four propositions are equivalent :—

- (1) The conjunction of  $x$ -true with  $y$ -false is false.
- (2) If  $x$  is true,  $y$  is true.
- (3) If  $y$  is false,  $x$  is false.
- (4) Either  $x$  is false or  $y$  is true.

Similarly each of the other varieties of Disjunctive can be expressed in four equivalent ways by use of the Disjunctive, Hypothetical, and Alternative forms. Moreover any proposition of the *disjunctive* type is contradicted by a proposition of the *conjunctive* type. Thus the contradictory of "If  $x$ , then  $y$ " is " $x$  is true, but  $y$  is false"; the contradictory of "Either  $x$  or  $y$  is true" is "Neither  $x$  nor  $y$  is true," and so on.

It is not enough for my purpose to establish merely the *equivalence* of the Disjunctive, Alternative and Hypothetical forms. I would contend that the only *natural* way of expounding the force of the Alternative and Hypothetical forms is to reduce them to the Disjunctive form. The syntheses 'or' and 'if' have been recognised as presenting peculiar difficulties by all logicians who are inclined towards an *objective* interpretation of propositions. The fact or actuality cannot itself be hesitating between two alternatives. It cannot determine itself conditionally upon an undecided contingency. The fact must be a *determinate* fact. The relation between alternatives or between supposition and consequent cannot be a relation between facts. Hence the origin of these forms must be looked for in the nature of the thinker's relation to fact. Now this relation is clearly the relation of partial or incomplete *knowledge* (or at anyrate, more exactly, partial or incomplete *statement*) about facts. Now how is this partial knowledge or statement to be exactly described? Examine the common man and you will see how he would explain himself if pushed to extremities. He

will be obliged to explain that by saying that one or other of two alternatives is true he means that he will not admit that *both are false*. By saying that if one proposition be true another proposition would be true, he means that he will not admit that the *first can be true and the second false*. He thus recognises that the *conjunctive* combination of propositions is a real combination which has obvious objective import. There is, therefore, a meaning in denying or refusing to admit any conjunctive combination. The alternative or conditionally dependent relation cannot be conceived as objective; but the conjunctive or determinative relation has a clear objective meaning. If this be admitted, the real difficulty of interpreting Hypotheticals and Alternatives, as representing a phase or aspect of actual objective reality, is shifted to the primary difficulty of interpreting *denial* objectively. For it may be admitted that *conjunction* has a real objective import and yet maintained that a *denial* of conjunction (as indeed any denial) cannot be interpreted objectively. The difficulty, then, is reduced to the primary difficulty of giving objective import to the *negative*. Now the occasion of a man's forming a truly negative judgment with respect to reality is undoubtedly that the suggestion of the positive is rejected in the conflict by an antagonist who does not clearly show his face. The antagonist is in reality a *positive contrary*, not an indeterminate contradictory. It is only a positive that has the power to reject another positive. But that positive may evince its power without being discernible as a *determined* positive. Hence the occasion for a negative judgment. Thus the difficulty is solved by the acknowledgment that, while the judgment determines reality, yet it leaves reality partially undetermined; while reality is absolutely determinate, it is only as yet incompletely determined. But why need we have had recourse to the negative judgment to demonstrate this? Does not every positive judgment equally illustrate the same limitation in our apprehension of reality? We can never "speak the *whole truth*," even though we may swear that we speak "*nothing but the truth*". A proposition, positive or negative, can only select one from the infinite number of latent specifications of reality. It does not thereby affirm that it has exhausted every aspect of the real.

§ 9. *Discussion of the above Interpretations.* To some readers all this will appear both true and trite. Others, however, will strenuously oppose it. I do not think that any logician except Dr. Keynes has gone quite so far as I propose in the thorough-going identification of the Disjunctive, Hypo-

thetical, and Alternative mode of synthesis, and especially in the view that the Hypothetical is contradicted by a Conjunctive, though this view would seem to be the natural outcome of the symbolic systems elaborated by Mrs. Ladd Franklin and Mr. Mitchell in the Johns Hopkins *Studies in Logic*. The discussion of this view is necessary, because it throws some light on a good many controversies in Formal Logic. In debating the point, one has to face two very different classes of opponents: the thorough-going symbolists and the thorough-going conceptualists. In the first class I have specially in mind Dr. Venn, Mr. Peirce, and Mr. McColl. These three writers identify (for symbolic purposes) the implicational relation between two propositions with the relation between the subject-term and predicate-term of the universal categorical. The first objection to this on symbolic grounds is simply that the latter has a *quantitative* element which is altogether absent from the former. Thus the universal categorical, "All cases of A are cases of B," contemplates a number of different cases in which A or B may be found. Hence it is contradicted by the particular categorical, "Some cases of A are cases of not-B". But the hypothetical, implicational, or inferential synthesis, "If the proposition A is true, the proposition B is true," contemplates simply the single conjunction or disjunction of A with B. There is no differentiation of cases or times by which the propositions A and B can be said to be 'in some cases' or 'sometimes' true and 'in other cases' or 'at other times' false. The same proposition cannot be sometimes true and sometimes false!<sup>1</sup> Hence the hypothetical which denies the conjunction of the truth of the antecedent with the falsity of the consequent is in its turn denied by simply affirming that conjunction absolutely, without distinction of where or when. Using Boole's symbols, it is clear that if  $x$  and  $y$  are propositions,  $x = 0$  and  $x\bar{y} = 0$  are contradicted respectively by  $x = 1$  and  $x\bar{y} = 1$ . But, if  $x$  and  $y$  are class-terms,  $x = 0$  and  $x\bar{y} = 0$  are contradicted respectively by  $x > 0$  and  $x\bar{y} > 0$ . There is no alternative between the truth or falsity of a proposition or a conjunction of propositions. But between the extension of a term throughout the whole universe and zero-extension, there lies the alternative of its extension throughout a part

<sup>1</sup> Those symbolists, who deny this, confuse the 'time during which a proposition is true' with the 'time to which the proposition explicitly or implicitly refers'. Propositions referring to different times are different propositions.

only of the universe. For the pure symbolist the matter may be clenched by the following observation. There is a thorough-going analogy between the combination of propositions and the combination of terms. But just as propositions are combined to form complex *propositions*, so terms are combined to form complex *terms*. Consider the combination of the propositions  $x, y$ , to form the complex propositions "If  $x$ , then  $y$ ," i.e., " $y$  or  $\bar{x}$ ". This is precisely analogous to the combination of the *class-terms*  $x, y$ , to form the complex class-term "class- $y$  together with class- $\bar{x}$ ". The analogy is symbolically perfect. Yet the symbolists to whom I have referred appear to identify the latter complex class with the *proposition* that this complex class exhausts the universe. They actually confuse the *class*  $y + \bar{x}$ , with the *proposition*  $y + \bar{x} = 1$ .<sup>1</sup>

This error seems to be closely allied to and to have arisen from a confusion between two kinds of synthesis both of which are expressed ordinarily by the sign *if*: one of which contemplates a conjunction or disjunction of circumstances in the same case or cases of phenomena, and the other contemplates a conjunction or disjunction of two propositions of independent import. The first mode of synthesis I should propose to call *Conditional* and the second *Hypothetical*. [See Keynes's *Formal Logic*, 2nd edition, pp. 64, 65.] For example of the Conditional take, "If a child is spoilt, his parents suffer". Here the *import* of the apparent consequent is only to be explained by introducing bodily the whole of the apparent antecedent, so that the proposition is really equivalent to a *single* categorical, namely, "All the parents of spoilt children suffer". For example of the Hypothetical take, "If virtue is involuntary, so is vice". Here we have *two propositions* of independent import—"Virtue is involuntary," "Vice is involuntary"—which are so related that the first cannot be true without the second. In this latter instance we deny the conjunction of the *truth* of the antecedent with the *falsity* of the consequent once and for all *without distinction of case or time*. In the former we deny the conjunction of the *circumstances* expressed by the antecedent with the absence of the circumstances expressed by the consequent *for every case in the real universe contemplated*. The hypothetical is contradicted by the proposition, "Virtue is involuntary, but not so

<sup>1</sup> This confusion is due to the fact that, if  $x$  is a proposition, then the proposition  $x = 1$  means neither more nor less than the proposition  $x$ . But, if  $x$  is a *class-term*,  $x = 1$  differs from  $x$  *in toto*, inasmuch as the former is a *proposition* and the latter a mere *term*.

vice". The conditional is contradicted by the proposition, "Some of the parents of spoilt children do not suffer". The conditional form is chiefly used instead of the categorical, whenever the real subject-term is highly complex involving a chain of relations (as in the propositions of geometry).

In arguing with the symbolist—who attempts to identify two somewhat different forms of proposition—one has merely to point out (as I have done) that the rules of symbolic operation are actually different in the two cases which he proposes to identify. But, in arguing with the logician who adopts what may be called a conceptualist position, the matter is not so simple. In this case of Symbolism *versus* Conceptualism, the Symbolist wishes to unite or identify what the Conceptualist distinguishes. Now the distinctions which the Conceptualist urges are of the highest importance; the Symbolist has merely to take the modest ground that *his* symbols are quite incompetent to deal with these distinctions until they are explicitly formulated. In other words, the distinctions of the Conceptualist are material or non-formal to the rigidly formal logician.

The cases we have to consider here are (1) The identification of the Disjunctive, the Hypothetical, and the Alternative forms of Synthesis, and (2) The identification of the Conditional with the Categorical universal.

(1) The Hypothetical, "If *a*, then *b*," might apparently be written, "The proposition *a* implies the proposition *b*". Its contradictory would then appear to be, "The proposition *a* does not imply the proposition *b*". This latter would mean (I presume), "The proposition *a* might be true without the proposition *b* being true"; in other words, "The conjunction of *a* with not-*b* may be true". In my interpretation, on the other hand, the hypothetical, "If *a*, then *b*," means, "The conjunction of *a* with not-*b* is false," and its contradictory is therefore, "The conjunction of *a* with not-*b* is true". The difference between the two interpretations is, therefore, indicated by considering the contradictory of each, which gives in the one case the *possible* truth and in the other case the *actual* truth of a certain conjunctive. Now this is a difference of *modality*. There are great difficulties in coming to an agreement on the subject of modality. But perhaps the following will be admitted. Modality refers to the *grounds* on which the thinker forms his judgment. It, therefore, expresses a relation between the thinker on the one hand and a certain proposition on the other hand. The real *terms*, then, of the modal proposition are the thinker and his relation to some judgment which is propounded to him. Thus

the proposition, "S must be P," asserts (say) that, "Any rational being is bound by his rationality<sup>1</sup> to judge that S is P". Now the contradictory of a modal proposition such as "S must be P" is always another modal proposition such as "S may be not-P," which would mean on the above showing, "A rational being is *not* bound by his rationality to judge that S is P". The modal proposition is, therefore, simply an assertoric on a different plane—concerned with the relations between different sorts of terms. It follows, then, that whereas a modal must always be contradicted by a modal, an assertoric must always be contradicted by an assertoric. Now to return to the proposition, "If *a* then *b*," I propose simply to regard this as an *assertoric hypothetical*, not as a *modal hypothetical*. In other words, it is taken to assert a relation of disjunction between *a* and not-*b*, not to assert the obligation to assert this relation. This interpretation is only in conformity with that of the simple proposition, '*a* is true,' which is regarded as an *assertoric categorical*, not a *modal categorical*; it asserts *a*, it does not assert the obligation to assert *a*; it is contradicted by '*a* is false,' not by '*a* may be false'. In justification of my interpretation, it is only necessary to urge that the ordinary use of "if" must at least include the affirmation of the disjunctive. Of course a speaker must have some grounds for his statement. But it is one thing to dispute the validity of his grounds and quite another thing to dispute his statement itself. Where the speaker intends primarily to assert his right to affirm the disjunction—not to assert the disjunction itself—this meaning has only to be made explicit, and the symbolist will be able to deal with it. But the change of meaning involves a reference to new *sorts of terms*, which cannot without confusion be mixed up with the old terms.

Very similar remarks must be made with respect to the identification of the Alternative with the Disjunctive.<sup>2</sup> The proposition "*a* or *b*" might be taken to mean "*a* and *b* are alternatives". Its denial would then appear to be "*a* and *b* are *not* alternatives". This again would mean (I presume) that "other alternatives besides *a* and *b* are possibly true," i.e., that "It may be that *a* and *b* are both false". Now I

<sup>1</sup> Or it may be by his spatial or moral intuitions. In every branch of necessary thought, the necessity has a different foundation—so far as the Logician at least can see.

<sup>2</sup> The reader will, of course, observe that I am not exactly following the common use of the word Disjunctive. The word, as originally applied to '*a* or *b*', implied the disjunction of *a* with *b*. I am identifying '*a* or *b*' with the disjunction of *a* with *b*.

regard the contradictory as being simply assertoric instead of modal, *viz.*, "a and b are both false". This is of course in accordance with common language: "Either-or" is naturally contradicted by "Neither-nor".

Considering, then, both the Hypothetical and the Alternative forms of proposition, I admit that the *psychological occasion* for these judgments is a certain relation in which the thinker stands to reality. But I do not admit that the force of the propositions is to *affirm* this relation. On the contrary, they must be taken as affirming assertorically a fact, which is within certain limits left *undetermined* in the judgment.

(2) I should wish to identify the conditional proposition, "If *any* subject is S, *that* subject is P," with the categorical proposition, "Any or every subject which is S is P," and this again with the ordinary form, "Every S is P". It has been frequently pointed out that the mental attitude involved in these two forms is different. But we must distinguish in Logic the mental attitude from the objective significance of a judgment. Logic is wholly concerned with the latter. If a mental attitude is intended to be *affirmed*, language is capable of doing this explicitly; and the new terms in which this new proposition is couched can be dealt with by formal logic as easily as the old. Other logicians would rather detect an *objective* distinction between the above two forms. But however this objective distinction is expounded, it is clear that new terms will have again to be introduced. Some, *e.g.*, might say the conditional means "it lies in the character of S that P is inseparable from everything that partakes in it". [Lotze.] Now as pleading on behalf of a rigidly formal logic, may I point out the obvious fact, that in this proposition we have an entirely new complex of terms? It is not in the spirit of under-rating the importance of such immensely interesting work as Lotze has performed in the Philosophy of Logic that I offer such an obvious reply. My object is rather to magnify the interest and importance of his and similar work, by markedly separating it from the dry and narrow field of Pure Logic. Even in this field there seems to me useful work to be done—not without its own interest. With respect to the particular point in question, I must urge that if the Aristotelian doctrine of syllogism is of any value, it gains its end entirely by the suppression of all distinctions that are not explicitly recognised in its S's and P's. Its universal applicability is only attained by demanding that *implicit* distinctions shall be voted out as *non-formal*.

*§ 10. The Definite Introduction of Various Conjunctions or Modes of Synthesis.* Though the calculus can be completely developed by use only of the particles *not* and *and*, yet the results in this form would appear strangely complicated and foreign to common speech. Hence it is desirable to introduce other modes of synthesis. The most convenient synthesis to introduce is the Alternative, indicated by the word '*or*'. I have urged that '*or*' is most naturally interpreted in terms of '*and*' and '*not*'. Hence the equivalence: '*a* or *b*' means not ( $\bar{a}$  and  $\bar{b}$ ). This is, of course, a mere verbal or conventional equivalence—not a fresh formal law. From the definition follows the reciprocal relation between *and* and *or* which has been so fully worked out by Peirce and Schröder. It is legitimate, though of course not necessary, to include further the symbol *if*. This, again, can be most simply defined as equivalent to *or-not*. Thus '*a* if *b*' means '*a* or  $\bar{b}$ '. This is another conventional equivalence. This definition suggests further the conjunction *without*, which is defined as meaning *and-not*. Thus '*a* without *b*' means '*a* but not *b*', i.e., '*a* and  $\bar{b}$ '.

The two conjunctions "*and*," "*or*," were represented in Boole's system by the mathematical symbols of multiplication and addition respectively. The words "*if*" and "*without*" correspond respectively to *division* and *subtraction*, if we eliminate the uninterpretable and indeterminate character which Boole gave to the processes. The common words *or*, *without*, *and*, *if* thus happen to have some analogies with the four fundamental processes of arithmetic. The analogies are, however, far from perfect; and the only legitimate ground for using Arithmetical symbols is that we are thus saved the trouble of learning to work with an entirely new set of symbols. If Boole had not taken advantage of this analogy, his system would never have taken the hold that it actually has. But his procedure was in one respect unfortunate. He started with *algebraical formulæ*, and then investigated whether these could be interpreted logically. He ought to have started with the logical formulæ, and then, if desirable, to have examined whether it was convenient that these should be represented by *algebraical symbols*. However, this error has been amply remedied in the writings of Dr. Venn. The question may still be asked, whether the continued use of Algebraical symbols is necessary or desirable? I hope to show in a future paper that these symbols are on the whole rather an encumbrance than otherwise. I think that they may be used in a modified form by the *beginner* in logical manipulation; and that they should be discarded later.

This conclusion is partly based on the definite ground that since our logical system treats *and* and *or* as reciprocally related, it is peculiarly inappropriate to represent these by  $\times$  and  $+$  respectively, which are *not* reciprocally related.<sup>1</sup>

But a stronger reason is that the plan of notation, which I hope to expound, actually enables us to solve more directly and immediately certain problems, which have not at present been easily solved. If this is admitted, it will appear perfectly feasible to drop all mathematical symbols in dealing with complex logical problems. This has of course been done by Dr. Keynes, though he has not exactly developed his method into a symbolic calculus. What distinguishes such a calculus is the application of given definite laws of combination to results of any degree of complexity, without any other recourse to intelligent perception of the process than is involved in the necessary postulates of *all* calculuses. The derivation of complex results from highly simple formulae of combination has been so nearly exclusively the mark of mathematics, that critics are inclined to disparage the method on the ground that it degrades logic to the position of a mere branch of mathematics. But the *method* is not *in itself* mathematical. Its so-called mathematical character is neither enhanced by the use of mathematical symbols nor diminished by their avoidance. The method is simply the method of *non-intelligent combination*. And on this ground only can it be applauded or condemned.

§ 11. *The Primary Analysis of Propositions.* The letter-symbols that are used in the foregoing calculus stand for *unanalysed* propositions. The synthesis hitherto considered is a synthesis of *propositions* into more complex propositions. Propositions combined into a system of propositions have the same properties as the simple propositions out of which they are constituted. We must now analyse the proposition into elements which are not themselves propositions, and examine what further developments arise in the synthesis of propositions from a consideration of this analysis. Here we must start with that form of proposition which cannot be resolved into more elementary propositions. Such a proposition may be called an Individual, Indivisible, or Molecular Proposition. The Molecular Proposition can only be conceived as an ideal limit, for any actual proposition is potentially resolvable into an indefinite synthesis of more elementary propositions.

<sup>1</sup> This contention does not, of course, apply to Dr. Venn's system, in which the two operations are *not* reciprocal.

The molecular proposition is found, on a first analysis, to contain two sorts of elements—a singular substantive and a finite verb. The former is the *subject-term* and the latter the *predicative-term*. These are the *atoms* whose combination constitutes the *molecular* proposition. The usual logical analysis of the predicative-term into *copula* and *predicate-term* is not fundamental and is in some respects particularly misleading. This analysis is generally, in fact, a merely *verbal* device, having no logical significance. For consider the proposition, "Socrates is mortal". Here we predicate *mortality*. If we interpret the predicate-term *mortal*, we should say it is a name given to any individual of whom mortality can be *predicated*. The substantive general name 'a mortal' is only definable by means of the conception of predication. By the device of introducing the name 'a mortal,' we do not at all obviate the necessity of marking the peculiar relation in which the predication stands to the subject. It is true that, starting with the conception of 'dying,' we may proceed to form the conception of the class of individuals which contains all who must die and none others. But this class is defined by means of predication thus: "Whoever must die". It is obviously circuitous to interpret the proposition, "Socrates must die," to mean, "Socrates is-identical-with one or other of those who must die". Besides, we do not in this way get rid of the peculiar predicative element. For this comes up again in the definition of our predicate name. To attempt to do this would involve an infinite process of substitution. "Socrates is-identical-with one or other of those who are-identical-with one or other of those who," &c., &c. It is, therefore, a mistake to suppose that the 'identity' or 'class-inclusion' interpretation of such propositions, which is perfectly legitimate in its proper place, enables us to get rid of the *predicative* element, which is essential to the proposition. There is one case, no doubt, in which the copula has a real logical significance, *viz.*, in such propositions as, 'Tully is Cicero,' 'Courage is Valour'. For here we have two real subject-terms, and the copula relates them as *identical*. Here "is" is a *relative predication*. The propositions are logically on a level with "Brutus loves Cæsar," "Red resembles purple". But these propositions really help to prove my contention. For the explanation of "Tully is Cicero" would be "Tully is identical with Cicero". Here the word "is" has fallen into the position of a mere verbal device, and we see that what we predicate of Tully is "identity with Cicero".

All that I wish to contend for here is that subject and predication are logically distinct categories; and that the

device of resolving predication into copula and predicate-name tends to obliterate the distinction. For the purposes of Formal Logic, there is one consideration which will establish this point. With respect to any subject whatever there must be *some* predications which can be joined with it, so that if some are denied, there must be others which can be affirmed of it. But we cannot say conversely, with respect to any predication whatever, that there must be *some* subjects with which it can be joined. Hence, after denying it of some subjects, there may be no other subjects of which it may be affirmed. A subject is that of which something must be predicable. But a predication is not necessarily predicable of some subject. Hence the subject cannot be regarded as a blank form; it must be filled with predications, determined or as yet undetermined by thought. On the other hand, a predication may exist in its own peculiar realm without ever being found to attach itself to any subject. The realm of predications and the realm of subjects are not, therefore, precisely analogous. The former may exist without the latter, but not conversely.

This distinction is embodied in the common mode of denying a proposition. In order to contradict a predication with respect to a subject, we allow ourselves to affirm of that subject what we call the contradictory predication. This contradictory predication is of course *indefinite*. But, in retaining the same subject, and affirming something of it, we imply that it could not *be* a subject unless something could be predicated of it. Hence the negation of a *proposition* attaches itself to the *predication*. If we attached negation to the subject, it would be because, in denying a predication to one subject, we assumed that there must be some other subject to which the predication could be attached. We deny the proposition, "Socrates must die," by affirming at least that "there is something other than death which is predicable of Socrates," not by affirming that "there is something other than Socrates of which death is predicable".

The 'existence' of a subject is then a presupposition of significant judgment. Also a 'meaning' to predication is a presupposition. But the two are not parallel. The subject *is* a subject, in so far as something is predicable of it. But a predication does not lose its meaning, because there is no subject of which it may be predicated. Having then granted the reality of subjects and of predications, we may proceed to give *names* which stand for one or other of these subjects or predications. These names *refer directly* to their objects. Hence they necessarily have *application*. Names which refer

directly to their objects may be called *purely denotative names*. To a purely denotative single name, then, there always belongs a corresponding subject or predication to which the name applies. The application of the name is to *one*—neither more nor less—namable object, whether this be subject or predication. The *existence* of the subject and the *meaning* of the predication, here, answer to the *application* of the subject-name or predication-name.

§ 12. *Synthesis of Propositions as Modified by their Analysis.* We may first consider the synthesis of propositions containing a common individual denotative subject-name. Here in accordance with the mode of denoting the contradictory of a molecular proposition by contradicting the *predication*, we also represent the synthesis of propositions containing the same subject by a synthesis of *predications*. We thus apply the laws and derivative rules for the combination of unanalysed propositions to the combination of predications of a common subject. Nothing further need be said on this point.

We have next to consider the synthesis of singular propositions, containing a common predication, but different subjects. Let  $S_1, S_2, S_3 \dots S_\infty$  represent a number of different individual subjects; and let  $p$  denote any predication. [It will be convenient in order to distinguish the predication from the subject to write the predication in the usual form “is  $p$ .”] A term  $S$  may be used to represent the aggregate collection of individuals  $S_1, S_2, S_3 \dots S_\infty$ ; i.e.:—

$S$  means “ $S_1$  with  $S_2$  with  $S_3 \dots$  with  $S_\infty$ ”.

Now there are two fundamental forms of synthesis which we have noted, *viz.*, “and,” “or”. These lead to the familiar abbreviations:—

$S_1$  and  $S_2$  and  $S_3 \dots$  and  $S_\infty$  = Every  $S$ :  
 $S_1$  or  $S_2$  or  $S_3 \dots$  or  $S_\infty$  = Some  $S$ .

Thus we arrive at the common logical forms, Every  $S$  is  $p$ , Some  $S$  is  $p$ . The former is an abbreviation for a *determinative*, the latter for an *alternative* synthesis of molecular propositions. The rules, then, for the synthesis of propositions may be applied to derive the relations between universal and particular propositions. These relations all follow from the consideration of the implied ‘and’ and ‘or’ which are latent in the quantitative terms ‘all’ and ‘some’.

We have, thirdly, to consider the synthesis of propositions, which refer to the same aggregate of subjects, but contain different predications. This yields six cases, according as we have a determinative or alternative synthesis of two

universals, or of two particulars, or of a universal and particular. The results are all derivable from the analysis of the universal and particular, as condensed forms of *and* and *or* respectively. The following are the chief results to notice :—

$$\text{Every } S \text{ is } p \text{ and Every } S \text{ is } q = \text{Every } S \text{ is } p \text{ and } q.$$

This follows at once from the consideration that, in the given compound, no mode of synthesis is involved except *determination*. Hence the commutative and associative laws immediately justify the equivalence. Similarly :—

$$\text{Some } S \text{ is } p \text{ or Some } S \text{ is } q = \text{Some } S \text{ is } p \text{ or } q.$$

This follows from the same laws applied to *alternation*. But we must observe that in the other cases no *equivalence* is possible. Thus we have :—

*Every S is p or Every S is q implies<sup>1</sup> Every S is p or q.*  
*Some S is p and Some S is q is implied by Some S is p and q.*  
*Some S is p and Every S is q implies Some S is p and q.*

*Every S is p or Some S is q is implied by Every S is p or q.*

These obvious results are shown to be derivable from the analysis we have given. The cases of *determinative* combination of two propositions correspond to the ordinary combination of premisses in the Syllogism, while the *alternative* combinations are represented ordinarily in Hypothetical Propositions (for *or* means *if-not*). The results lead to some important criticisms of the systems of other symbolists, which must be for the present postponed.

§ 13. *The Calculus of Multiple Quantifications.* We have now traversed the entire ground of ordinary formal logic. But our treatment will not be complete without a consideration of the so-called *Logic of Relatives*. This term is peculiarly misleading. No Formal Logic really treats of Relatives in general *quād* Relatives. It can manipulate complex propositions involving a double, triple, quadruple, &c., *quantification*. And it is this manipulation to which the name *Logic of Relatives* has been unfortunately applied. By *quantification*, I mean the use of such terms as *All*, *Some*. By a proposition involving multiple quantification, I mean such a proposition as "*All* readers find *something* to enjoy in *any* volume

<sup>1</sup> "Implies" here means "formally implies," i.e., "contains as a determinant". Formal inference is, in fact, nothing but *discovering the determinants* of a given complex. The relations between *formal equivalence*, *implication*, or *contradiction*, and *material equivalence*, *implication*, or *contradiction*, will be treated in my next paper.

written by a true poet". This involves a *quadruple* quantification. The main ground of interest in the subject is that its treatment will conclusively show that the only instruments in the hands of the formal logician are pure synthesis and pure negation. For we have already observed that "all" is a mere abbreviation for "and"; that "some" is a mere abbreviation for "or"; and that "*a* or *b*" merely means "not (*not-a* and *not-b*)". When the needful analysis of a proposition involving multiple quantification is made we shall then see that the resulting calculus is merely a complex derivation from the five fundamental laws of propositional synthesis given above.

In the primary analysis of the proposition, we employ a *single* subject-term and a predicative-term to represent the molecular proposition; as in "Caesar sleeps". But a further analysis may disclose a *double* subject. Thus "Caesar loves Brutus" contains the two subjects *Caesar* and *Brutus* and the relative predication-term *loves*. Considering, then, two groups of subjects  $x_1, x_2 \dots x_\infty$  and  $y_1, y_2 \dots y_\infty$ , we have six cases of doubly-quantitative propositions. These correspond to the six cases of combination of two *singly-quantitative* propositions. For we may take all the molecular propositions of the form "*x* loves *y*," and combine them determinatively or alternatively with respect to the *x*'s and with respect to the *y*'s. We thus obtain the forms:—

- I. Every *x* loves every *y*.
- II. Certain *x*'s love every *y*.
- III. Every *x* loves certain *y*'s.
- IV. Some *x* or other loves every *y*.
- V. Every *x* loves some *y* or other.
- VI. Some *x* loves some *y*.

The distinction between II. and IV. and also between III. and V. has to be carefully noted. These forms involve the same modes of synthesis of the same elements, but *differently bracketed*. The word "Certain" is equivalent to "Some the same"; the expression "Some or other" is equivalent to "Some it may be different".

These propositions, and others similar to these, but of any higher order of multiple quantification, only require a careful analysis as regards the way in which the "and" and "or" syntheses are introduced. Under this treatment, the results will again be seen to be mere complex developments of the five fundamental laws of propositional synthesis. I hope to be able to exhibit the calculus of multiple quantifications in

a future paper. In the present article, I must return to a consideration of certain possible criticisms.

§ 14. *Criticism of the Preceding Analysis.* If the above analysis is admitted to be correct, it will establish the point that all the familiar methods of Formal Logic, and the less familiar results of Relative Logic, depend, not on the peculiar relation of subject and predication, but on the propositional synthesis involved in the *quantitative* element of the universal or particular judgment.

To all this the objection will be raised that it treats the universal and particular as merely *enumerative* forms, and entirely neglects the essential difference between a mere enumeration of single cases and the true universal which is controlled by a common nature or limited by the possession of a common attribute. It is true that this distinction is partially disregarded, but only in so far as it is irrelevant to the interpretational force of the universal. However the aggregate of things, to which the universal name applies, is mentally reached, the propositional force for purposes of inference or synthesis in general is the same. Just as we may measure the length of a curve by integration of small elements, although it is intuitively apprehended or analytically defined as a whole, so we may estimate the inferential import of a universal by regarding it as a synthesis of individual propositions, although the individuals are first determined by the conception of the universal in its oneness.

A further consideration of the import of ordinary quantitative propositions will provide us with a more complete defence. It is true that the quantified subject-term is not usually a mere enumeration of individuals first apprehended and named. But this is because the subject-term is not a *bare* subject, but a term having predicative as well as substantive force. Thus the proposition "All mortals must suffer" involves two predicative elements—dying and suffering. It asserts some sort of synthesis of these two predications within the same subject or subjects. The apparent subject is "Whatever dies". What then is the real or ultimate subject? It is certain that predication cannot *by itself* determine a subject. The application of the term 'mortal' cannot be evolved from the attribute 'mortality'. In common logical language, the denotation must be fixed and limited by something independent of the connotation. That which fixes all denotations is simply the *aggregate of all individual subjects*, the presupposition of which we have seen to be necessary for significant judgment. These subjects

can never be exhaustively characterised by means of predications. There remains always the stuff, substance, or matter on which the predications must hang. What are the boundaries of the 'universe of discourse'; whether these boundaries are uniformly the same in all 'discourses' or differ for every 'discourse'; are questions irrelevant to Formal Logic. It is enough to point out that there can be no such thing as a specific *denotation* of terms, unless there is some aggregate of individuals in the background ready to receive the connotation. With this understanding then we may resolve the apparent subject into its really substantive and predicative elements. The proposition "All mortals suffer" thus becomes "Any subject suffers if mortal". Here the ultimate subject is referred to universally; and the predication 'suffers if mortal' involves a complex synthesis of predications. The other cases are similarly treated. Thus—

Every $x$ is $y$	= Every subject is ' $x$ if $y$ '
	= Every subject is ' $x$ or $\bar{y}$ '.
No $x$ is $y$	= No subject is ' $x$ and $y$ '.
Some $x$ is $y$	= Some subject is ' $x$ and $y$ '.
Not-every $x$ is $y$	= Not-every subject is ' $x$ if $y$ '
	= Not-every subject is ' $x$ or $\bar{y}$ '.

All propositions, then, involving predicative subjects may be resolved into propositions having, as common subject-term, the aggregate of all individual subjects; and as predicate, a synthesis of the predications involved in the apparent subject and predicate. This result follows from the necessary reference of the subject-term to *denotation*. It is clear that, without a reference to a *common* aggregate of subjects, propositions could not be synthesised at all. The ultimate subject-term is referred to either *universally* or *particularly*. Hence the force of the proposition is brought out (as before) by interpreting the *universal* as an abridged *determinative* synthesis and the particular as an abridged *alternative* synthesis.

This interpretation of the universal and particular corresponds exactly to the interpretation given by Dr. Venn and Mr. Peirce and worked out by Dr. Keynes. In order to obviate certain objections that have been raised to their methods and also to show the closeness of the proposed interpretation to that ordinarily given, I have preferred to use the term 'denotation' in place of 'existence,' and to state the propositions with the same *signs of quantity*

that they originally contained. But my procedure is essentially the same as theirs. In the interpretation given of "all  $x$  is  $y$ ," I have *not* assumed that  $x$  has any denotation, *i.e.*, the extension of  $x$  may be zero. If, in any given case,  $x$  is known to have extension greater than zero, the scheme of interpretation is perfectly adapted to express this additional datum. We have merely to conjoin with the negative proposition "Nothing is  $x\bar{y}$ " the affirmative "Something is  $x$ ". A proposition is not reduced to insignificance by allowing the possibility that a *connotative* term such as "Any subject of which  $x$  may be predicated" has extension zero. This is quite consistent with my former statements that a *purely* denotative term must have extension greater than zero, and that the universe of denotation must itself have extension greater than zero.

[The statement (on p. 13) that "The same proposition cannot be sometimes true and sometimes false" must be taken in connexion with my recognition of propositions involving multiple quantification. Thus we may indicate a series of propositions involving single, double, triple . . . quantification, which may reach any order of multiplicity: (1) All luxuries are taxed. (2) In some countries all luxuries are taxed; or, In those countries in which all necessities can be produced, all luxuries are taxed. (3) At some periods it is true that in all countries all luxuries are taxed; or, In all countries, at those periods at which some necessities can be produced, all luxuries are taxed. With respect to each of the types of proposition (1), (2), (3), I contend that, when made explicit with respect to time or place, &c., it is absurd to speak of them as sometimes true and sometimes false. And I maintain also that symbolists are wrong in giving a unique place to *time* as a secondary differentiation of propositions. The rules for dealing with multiple quantification are precisely identical, whether the secondary quantification relates to time, place or any other substantive category.]

### III.—THE IDEA OF VALUE.

By S. ALEXANDER.

AMONG the judgments which we pronounce concerning things there is a well-marked distinction of two kinds. The one kind consists of bare statements of fact—such as, “The rose is red,” or, “Balbus is building a wall”. These may refer either to external objects or to internal states of mind. The proposition “The tree is green” describes a fact of external nature; the proposition “I am cold” describes a mental fact. Some psychologists would not admit that the two propositions are comparable; but however much they may differ in character, they may be joined together in distinction from a second kind of judgment. This second class consists of moral and æsthetical judgments and of propositions which do not merely imply but assert truth or untruth. Such judgments seem to consist of two: they not only assert a matter of fact, but they go on to assert something of this matter of fact. They apply to it a certain measure or rule, called goodness, or beauty, or truth, as the case may be. They are judgments in a different or rather in a more complex sense than that in which the other kind of judgments are; for they are not merely expressed as propositions, but they imply that something has been put on its trial and judged. They contain the sentence of the judge, whereas the others contain only the report of the jury. The jury have to decide if a man has committed a fraud; the judge thereupon condemns or acquits. We cannot evade the ambiguity of the word “judgment” in English, for the word “sentence,” which describes the decision of the judge, describes also the proposition as expressed in language. The ambiguity is not without obvious reasons; for the words “judgment” and “sentence” have been taken by logicians and grammarians from their popular use in law, and applied to technical purposes. It is of far greater practical importance to have a name for the way in which we express approbation and disapprobation in all their various forms, than to have a name for bare statements of fact, and the use of judgment as equivalent to the sentence of the judge is therefore the first in time in popular language. We may call the second class of judgments “normative judgments,” because they apply a norm or standard, or “judgments of value,”

because they declare something to possess value from the point of view of truth, beauty or goodness. The German language, so well adapted for expressing reflective distinctions, hits off the difference of the two kinds of judgments by calling the first set "Urtheile" or judgments in general, the second "Beurtheilungen"; the distinction in this form has been current in German thought from the time of Herbart.

It is in this sense of judgment that I propose to deal with the subject in this paper--to inquire what value means and upon what it is founded. For the economist value has a very definite significance--the value of a commodity is the quantity of other commodities which the first can procure. The economist is well aware that the economic value of an object is in no way identical with the value which a moralist or an artist may set upon it, though he is equally aware that the economic value of an object, being dependent partly on demand, is affected by every moral and æsthetic consideration which affects the desires of persons to possess the object. There would seem at first sight to be only a superficial connexion between value in economics and value in morals or æsthetics or in respect of truth. Of economic value there is a common measure in certain specific commodities--the precious metals, which form the standard of price. There is also a currency in which the other kinds of value are measured, and this currency is one in which three standards are legal tender. For truth, goodness and beauty all three seem closely to cohere, and attributes are transferred from one standard to the other with the utmost freedom. At one time, as in Greece, the beauty-standard is the superior, at another time, goodness. But there is this difference between economic value and what we may call philosophic value, that value in economics has degrees, whereas here it seems to have none. We do not call an ugly thing less beautiful, we declare it not to possess beauty at all; we do not call a bad action an inferior kind of good action, we reject it as of a different character altogether, as having no community with goodness; we do not recognise degrees of truth, but declare what is true to be utterly alien to the false. When we do make such distinctions of degree, we do so for various reasons, either to indicate that the thing in question contains elements which in themselves or out of their present surroundings have value; or we do so in order to mitigate the severity of our censure, as when from dislike to condemn an action off-hand we declare it to be not so good as it might have been. And yet it may be doubted whether

"philosophic" value has not after all a closer relation with economic value than might be supposed. The economic value of a thing is fixed by answering a question of this kind: "Is this thing worth the money that is asked for it?" or (if we put money out of the question): "Is it worth the amount of things demanded in exchange for it?" This is tantamount to asking, "Are the desires of buyers such as to induce them to accept the object (and gratify at the same time the desires of the seller) at the price which is set upon it?" The "state of the market" means, "We will buy such and such objects at such and such a price; different objects, or these objects at different prices, we will have nothing of." Now this is precisely what the moral judgment says; the moral law says, that human beings will have only such and such actions, performed with such and such frequency and with such and such intensity; actions other than these are bad. In other words, economic value represents, and embodies in a particular form, the exchange of desires for material things: now, it may be maintained, and it will be maintained here that moral and other ideals represent equally an exchange as between many persons; though not an exchange of desires for material things, yet still an exchange of mental requirements; and the standards of truth, beauty and goodness in their different ways represent the different methods of effecting the exchange.

In what follows I shall principally speak of moral value, and of the other kinds of value, aesthetic and scientific, only incidentally and by way of illustration. The exact relations of the three are a difficult matter; but any one who has reflected on the subject knows well that all the problems which occur in one sphere occur with the necessary variations in the other. As my object is to deal with the conception of value in itself, it would be mere repetition to verify statements in all the three possible directions. I confine myself, therefore, to that with which I am most familiar.

What then is value? We began with the distinction between judgments of fact and judgments of value. Is this distinction a final one? That it is final is the belief of a large number of thinkers. "In morals," they say, "we deal not with what is, but what ought to be; not with events, but with commands which are binding upon events; not with the indicative, but with the imperative mood. We cannot step from the one region into the other. In morals we deal with ideals, but ideals hold up a standard to which facts must be made to conform, and they are not in them-

selves facts." Let us look at some of the various forms which this distinction has assumed. It is implied in the ordinary intuitionist theory that we possess a faculty of deciding the moral value of a proposed action which is independent of our other faculties and is in no way derived from them. This is combined with the belief that moral judgments have no connexion direct or indirect with contemplation of the consequences of action. From any such purely intuitionist view we have carefully to separate a seemingly intuitionist theory like that of Hume, which also asserts the existence of a moral sense, but at the same time declares this moral sense to be determined by a general view of the nature and effects of the action. No one, not the most hardened hedonist, has ever doubted the existence of a moral sense. The only question which has to be solved is the question whether this feeling is an abstract and brief chronicle of many simpler sentiments or whether it is something unique and inexplicable and is concerned with an object out of line with other objects of experience.

Intuitionism is not, however, the shape in which the contrast of "ought" and "is," of "ideal" and "fact" is most startling, nor is it the theory with which any exposition at the present time has most need to settle its account. In the theory of Kant the contrast was marked in the sharpest outlines, and from him it has been inherited by a large and influential body of thought in England. With Kant the moral law was above sense. It proceeded from man in his rational character, as member of an intelligible kingdom, subject only to the universal laws of reason. It must be obeyed by him in his empirical character, and therefore it presents itself to him as an imperative, but one which he sets to himself. It borrows nothing from the sensuous elements of his nature, which it rather humiliates than seeks to satisfy. It is not contrary to nature, but in so far as it takes up its sensuous material from human nature it has none of the marks of morality as such,—it has not the freedom, and with it the universality which belong to the moral law. Only in God is the union of sensuous perfection and rational perfection, without stress or strain, effected. In this famous theory to which no short summary can do justice, because any such summary must appear to pass over the permanent elements of value in the theory, "sollen" and "seyn" stand confronting each other. They react upon each other, but they exclude each other. And every one who has kept himself abreast of recent ethical writing in England knows how, with all its rejection of Kant's cold and

exaggerated formality, this cardinal distinction remains : how something in the mind different from its ordinary operations of sense, imagination, and the like is thought to remain which gives foundation to the ideas of a "truth" or a "goodness" (an "ought") not to be explained as the complicated result of simpler mental operations.

Before proceeding to the main argument, let us mention another theory which seems to retain the same distinction in principle, while it combines the merits of both the Kantian and the intuitionist views. Perhaps no modern philosophy is more interesting in itself or more important in its consequences than the Herbartian ; and the Herbartian ethics, however untenable, are full of instruction. Herbart and his followers assert the existence of a class of feelings called "formal" feelings, the characteristic of which is that their object is some purely formal disposition of objects. Such feelings are (to take examples which are given by Professor Steinthal), the pleasure which arises from the mere metrical arrangement of a hexameter, from the mere contemplation of the so-called golden section of a line, from the arrangement of tones in a melody. These feelings are not excited by the sounds themselves or by the different parts of the line ; they have nothing in common with the ordinary feelings of anger or joy. They are directed upon the relations which subsist between the lines and the tones or, more exactly, upon the pure form of this relation. As such they are not merely subjective feelings, not mere sensuous affections of the individual mind, they are objective, are directed upon something objective and have a universal value. Such are the aesthetic feelings and the feelings for truth, and such also are the moral feelings. There are certain relations between the parts of human conduct or relations of will which excite an immediate pleasure or displeasure. These relations are drawn out in the Herbartian system. They are called *Ideas* and are the standards of moral judgment. Such are, for instance, the Idea of Personality, the formula of which is that an action, which a man adopts solely on the strength of his moral *insight*, pleases ; or the Idea of Harmony, according to which an individual will in agreement with the general will pleases immediately ; or the Idea of Good-will ; or of Right ; or of Perfection. The vast superiority of this theory to that of intuitionism is apparent at a glance. But the reason for alluding to the theory here is that under the peculiar form of asserting the existence of a special kind of feeling—feelings of formal relations—it also asserts the opposition of what is ideal and ought to be, as

something universal and absolute, to other facts of mind or nature.

Such then are some of the forms which the supposed cardinal distinction of fact and value, of "ought" and "is," has assumed. That this distinction is a real one is one of the prejudices which testify how powerful is the effect of practical considerations in perverting scientific ideas. It is of the utmost importance for human welfare to insist on the sanctity of moral laws. However human institutions may change, however much our ideas of what is right may undergo modification or even revolution, to violate those standards is sacrilege. Yet their paramount importance does not imply that their authority is unique, and derived from other sources than the commonest facts of human life. But this confusion of the practically invaluable with the theoretically unique is the confusion which is committed by those who maintain that the distinction of fact and value is *ultimate*. The last words ("is ultimate") are chosen advisedly. That there is such a distinction is a truth which is as obvious as the truth that apples and roses are different plants. But as this last truth is compatible with the truth that both apples and roses share in one common type, so is the distinction of fact and value compatible with the proposition that value is only a particular kind of fact, a fact of a higher order, but essentially a thing natural, and in direct continuity with all other facts. There are two dangers to which the mind is liable in scientific and especially in philosophic inquiry. One is that which arises from what Bacon described as the too great *aequalitas* of the mind, the spirit which overlooks the patent distinctions of things, and merges their individuality in one sweeping and vague generalisation. Seeing that this gift for perceiving resemblances is the mainspring of all comprehensive thinking, those who do not avoid this danger may well be forgiven because they loved much. The opposite danger is that of hardening the flexible junctures of things, of digging ditches where nature has drawn thin lines, of painting in sharply contrasted colours when in reality one colour shades off by gradations into another. This is the spirit which loves discontinuity, which imagines that the cousinship of the more highly and less highly developed forms reduces both to the same low level of development. Paradoxically enough, this spirit often arises from an imperfect success in comprehending the whole of a subject at once, and hence it is often found combined with vague and unfruitful generalisation. Such appears to be the case with the theory that fact and value

stand upon different levels and are incommensurable. Though the chief cause of this illusion is to be found in the obfuscation of the intellect with the dust which is raised by practical interests, yet part of the blame is due to the fact that no attempt is made to discover what value itself is. That value exists is certain ; that the value of an act is different from the act itself is also certain ; but to assert on the ground of this that value has a place to itself as something unique is to fail in seeing the connexion of value with other facts of the world.

Some of the difficulty might have been avoided in morals if art and science had been taken into consideration as well. It is easy to maintain that the feelings which act as arbiters in moral decision are unlike all other feelings ; but no one doubts that beauty at least is apprehended in the form of the pleasure which the mind takes in contemplating certain colours or sounds or other sensuous forms. But here again it may be answered, and from Plato onwards this view has been reiterated, that the beautiful is a sensuous embodiment of something ideal, or rational. Or that truth is the approximation of human knowledge to an *ideal* of knowledge, or perhaps to the ideal constitution of things. In like manner in morals our judgments have reference to ideals. When we pronounce an act to be good we mean that such and such an act accords with the ideal of action. And how can such a standard be reduced to the level of such facts as those with which the psychologist deals ?

The answer to this is very simple. Ideals are nothing but the formulations of desires. The moral ideal is a very complex and highly organised system of such objects of desire. Morality consists of certain observances or conduct upon which the men called good are agreed, or on which men are agreed so far as they are good men.<sup>1</sup> It represents the different directions in which the energies of different members of a society must be expended in order to work smoothly in connexion one with the other. The moral order is in its essence something social and implies the co-operation of the individuals who compose a society.

<sup>1</sup> I may as well at once obviate any verbal objection which might be raised on the ground of the inconsistency with which I speak of the ideal sometimes as a formulation of desires, sometimes as the object of desires, sometimes as a mass of sentiments. The ideal is a kind of character, or a number of modes of conduct, and may properly be designated therefore as a mass of sentiments or desires, which make up the character and compel to the conduct. Any man who possesses the ideal makes the character or conduct so described his object.

They bring to it from their birth and from their training certain personal endowments, whether mean or excellent, gifts of body and of intellect or feeling, gifts of fortune, and gifts of opportunity. As so endowed, they enter into the social life with forces or weaknesses, which at every turn come into contact with the forces or weaknesses of other individuals. The result is a compromise, which determines not only what powers must be exercised, on what occasions, but also the extent to which they must be exercised. Each person in so far as he is a true contributory to this complex whole of conduct is a reflexion in his own person of the social order. His own functions are settled by his peculiar circumstances, and he has to see that in his conduct he shall so utilise his nature and his opportunities as to become efficient for the social good. If he is a good man he will make such actions as advance the social good the object of his desires ; or, in other words, he will desire such things as are required for the social good. He is himself a complex mental organism, and his desires are not uniform but multi-form. Together they form a system or whole which is his personal ideal, the many-sided object of his desires. The moral ideal, whether it be taken as the personal ideal of each good man, or as the ideal of the whole community, is thus the object of desires.

In what sense then is an ideal raised above the ordinary range of mental facts ? I put aside as irrelevant to the matter the question whether ideals are ever realisable, whether an ideal is something put forward as an end to which we strive to approximate but know that we cannot attain. It is certain that we are always projecting in front of us an improvement on those attainments which we have effected in the past. But whether we think of an ideal as something essentially unattainable, or more exactly hold that the ideal is attained in any good act, but brings forth other ideals superior to itself; in either case the ideal remains nothing more nor less than the object of desires,—an object which floats before the mind in idea before it is effected in reality. Such ideals represent sentiments—the love of country, of family, the desire to help distress, the desire to maintain unimpaired our free individuality, the desire to embody a talent in a work of art or science. To say that the moral ideal stands alone is to deprive it of its material character, to suppose it something apart from the particular duties which it imposes, something other than those exercises of human volition which by experiment or experience have settled into that adjustment or equilibrium which we style the moral order.

Only in one respect can it be urged that the ideal stands by itself—that it is no mere congeries of desires but a systematic whole, and can be held before the mind on occasion as such a single whole of objects of desire. And the same may be said of the standards of truth and beauty. They too imply many elements of knowledge or sensuous form, but these elements constitute one whole or system. How is such a system possible? Does it not by its systematic character not only differ from any desire or perception, but imply the existence of something which can alone be the author of systems? There is much force in this contention, and the questions which it raises cannot be easily disposed of without attempting a whole philosophy. Nevertheless the contention is ill-grounded. It is true that the systematic character of ideals separates them from single desires, but to allow this is to do nothing more than assert the claim of ideals to be recognised as real and distinctive mental existences. But their systematic character arises from the systematic character of society itself, and of the individuals who compose society. Other systems can be found in the world than in the region of ideals of value. These ideals are nothing but organic forms of which the constituents are human individuals. There is nothing in a system as such which is not illustrated by any animal or plant. But no animal, or plant, it will be urged, can think of its system, its organised form of life, *as such*: no animal has a consciousness which can contemplate its end *as a unity*. This is true. But the ability of a creature to present its end at once to its consciousness is something which follows from the ability to present any single object to consciousness at all. It is with a true strategic instinct that those who find in human intelligence something unique and inexplicable begin by finding the presence of this principle in the very beginnings of human intelligence, in perceptions. Their position is indeed undermined by every advance which is made in psychology, by all the proofs which accumulate to show that ideas, which as distinguished from sensations become the central position of such philosophies, are but impressions recurring in modified form; by every step which is discovered in the genesis of the idea of an object as such. It may be that the gaps have not yet been satisfactorily filled in the sequence which connects human consciousness proper with the purely sensitive consciousness. Yet even if we grant to these thinkers this temporary advantage it remains certain that the idea of a system *as a unity* is explicable by association or other complication of ideas,

when once it is possible to form an idea of an object at all. An ideal, as an object of desires, presents therefore no element which is not presupposed in the whole of human intelligence. And once again, even if we grant the existence of something peculiar in human consciousness, no reason exists for elevating ideals, whether of goodness, truth, or beauty, into a class by themselves as things which exist outside the range of facts, in the proper sense. Value is, once again, one kind of mental fact, in whatever sense mental fact is understood, and, to repeat the assertion with which this discussion began, ideals are the formulations of desires.

"Sollen" is thus one kind of "Seyn". That which "ought to be" represents the sentiments of good men, and these sentiments are as much facts as hunger or love, and more powerful. Yet it will be answered that after all this evades the real issue. "It is true that the moral ideal is but a mass of sentiments. But still the sentiments which are formulated in the ideal are sentiments as to what kind of action *ought* to take place." This must be emphatically denied. The sentiment which prompts a man to do an act of benevolence may indeed be accompanied by the feeling that such an act ought to be done, but in itself it is nothing but a sentiment which drives the person who feels it into the particular action. The whole standard of what ought to be done operates upon the minds of good men with this impelling force, and there is no new quality of duty or "oughtness" which is contained in the object of all their desires. What the objection must be taken to mean is that the "oughtness" of the moral ideal does not lie in the ideal itself, as such, but in the power or authority of the ideal over those who are to obey it, and that this "oughtness" which attaches to any moral object is something unique or, if the term be preferred, transcendental. In other words, when we say that in morality we are dealing not with what is, but with what ought to be, we do not mean that there is anything unique or transcendental in the moral law itself, but in its obligatoriness, and this obligatoriness is either itself something which has value, or it gives value to the moral law, and that which has value is no longer simple fact. But even in this form the distinction of value and fact breaks down. For what is this obligation, this authority which attaches to morality? Take the case of the ordinary moralised person, and note what happens when he feels himself bound to do a particular action, say an act of benevolence. Let us suppose that he has some dislike to performing the act, would rather keep his money for some

project nearer his own heart, but duty compels him to do the act. What happens in his mind is something of the following kind. The sight of the object requiring relief suggests to him the idea of benevolence, but before this idea becomes powerful enough to pass into action, conflicting ideas suggested by the idea of the money necessary for the act enter the field of view. But, at the same time, the idea of the benevolent act awakes by association all the ethical ideas—that is, all the moral sentiments which education has tuned into such sympathy that they vibrate whenever any one of them is touched. The whole force of these moral sentiments supports the idea of the good act, and repels the idea of the self-indulgence; and in so far as their compulsive force restrains the evil sentiment, the good idea is felt to be invested with the character of duty. Supposing there were no inclinations which impel against the moral requirement, the force behind the particular duty would be felt in the milder form of authority. What then is the obligation which we attach to any moral ordinance? We have seen that the moral ideal itself is nothing but a name for certain sentiments. The upholders of a unique "oughtness" or "obligation" which severs "value" from "fact" evade the force of this truth by seeking refuge in the original character of "obligation". But this obligation is itself nothing but a sentiment. It is the sentiment of approval in the good man's mind which follows upon his presenting to himself the idea of the good act, or the sentiment of disapproval which he feels upon presenting to himself the idea of the bad act. The pleasure which arises in the one case and the pain in the other indicate that the ungenerous course is not compatible with the whole mass of sentiments which are the effective force in determining his action. These sentiments are, to use the language of Herbart's school, the apperceiving mass which is employed in all the good man's conduct.

Something must be added or reiterated to qualify the naked assertion that that which gives the characteristic flavour to an act as moral, its obligation, or its goodness, consists in nothing but a sentiment. The sentiment is a sentiment on the part of the good man. With the bad man we are no farther concerned. For him duty has no meaning, in so far as he is bad: he is accessible only to the compulsion of rewards or punishments. The authority which he recognises is but the seduction of favours to be won, or the terrors of displeasure to be endured. His apperceiving masses are different from those which impel to right behaviour; he

sees the world with other eyes. He, too, has his ideals; they are with him too the formulation of his desires; he has too his apparent approvals and disapprovals, but that which pleases him displeases the good man. His sentiments have their place as facts in the world of human feelings. But since they are not the same as the sentiments of the good man, they are declared by the good man to have no value. A bad man means, therefore, in the first instance, nothing more nor less than a person whose sentiments and consequent approbations differ from those of the good man. The whole fabric of morality reposes upon a difference of tastes.

A certain dislike is felt to accepting the notion that the goodness of a good act is nothing but the approval of it by the good man. The doctrine is not indeed in substance a new one: it is practically equivalent to the doctrine as understood by Hume that the moral sense decides immediately upon the goodness of conduct.<sup>1</sup> For the moral sense is nothing but the mass of moral or, let me say (to use a neutral term), "active" sentiments operating in the way of approval or disapproval. In effect it is a mistaken apprehension of this doctrine which lies at the basis of intuitionism in morals under all its forms, whether in the naïve and unreflective form of the English intuitionists or the stimulating and suggestive form which it assumes in the already-mentioned Herbartian ethics. It is because goodness is nothing but the approval of the good man that there is plausibility in declaring that certain feelings within us are the absolute judges of what is right and wrong. The mistake of English intuitionism lay in breaking off all inquiry into the origin of these feelings by declaring them to be original and inexplicable; the mistake of the Herbartian doctrine lay in attributing to these feelings a character and an object which they do not possess. Still the identity of goodness with the feeling of approval conflicts with the feeling that there is something external or objective in right or wrong, something which can be apprehended in feeling, but is itself not feeling. Yet if we ask where is this objective morality of which our moral sentiments are but the apprehension, we receive an answer which is either intangible or implies the truth of our assertion. If we are told that morality is some ideal principle, we ask our informants the meaning of such principle dissociated from moral habits

<sup>1</sup> "We do not infer a character to be virtuous because it pleases; but in feeling that it pleases after such a particular manner we in effect feel that it is virtuous." (Hume's *Treatise*, bk. iii. pt. i. § 2.)

and aspirations. If we are told that objective morality consists of the settled modes of behaviour required by a society of its members, we do but receive corroboration of the suspected theory. For the institutions of society are not parliaments and churches, town-halls and law-courts, schools and universities: they are not temples built with hands: they are the habits of actions which centre round these "institutions," which find in buildings or written ordinances their point of attachment; they exist solely in the feelings or sentiments of men, or what is the same thing, in the conduct or volitions which represent the muscular discharge of those sentiments. In morals we are in a purely mental region: we are dealing with the wishes of men and women, suggested and modified by all manner of physical circumstances, but not identical with these. Goodness in ethics is a purely human invention; it implies a relation between one kind of human volition and a number of others. In like manner beauty and truth are purely human inventions: they move in the sphere of human sensation, or of knowledge, and it is a mistaken view of beauty or truth which seeks a criticism of them outside the different elements of æsthetic perception or of intellectual apprehension. But the questions raised by the nature of beauty and truth are too intricate to be discussed further here. For truth, though it means a cohesion between the parts of our knowledge, yet has reference to a world which does not vanish with our knowledge; and beauty, though it means a harmony between our sensuous impressions, is embodied in external and permanent forms. But in morals we never step outside the sphere of human sentiments. The moral order indeed abides though I disobey it: but it abides only in the sentiments of those who support it and enforce it against me. Destroy the good man, and the moral order perishes too. Where then should authority be found but in the relation between the wills or the sentiments of those in whom morality is incarnate? and this relation, being necessarily a mental relation, is experienced as a mental state, and is that approval or disapproval the more exact psychological character of which has been described. Nor is it difficult to see how, the whole having no existence outside the sentiments of good men, morality has yet an objective existence. It is objective in two ways. In the first place, as against any one particular good man, it is a totality or complex of good men, of which totality the particular goodness is a contributory factor. Its objectivity is not the external existence of the physical object, but the inclusiveness of the social

organisation. And, in the second place, as against the bad man, morality is objective as a truly external force which excludes him, so long as bad, from participation, and more than that, proves its own claim to continued existence by extirpating his bad action.

Goodness or obligation or authority (all of which may for the present purpose be regarded as identical, for they are but different shapes of one and the same thing, the relation of any one part of the moral order to the whole) are thus equivalent to the approbation which is felt by good men for the action in question ; the "oughtness" of the moral ideal is resolved into a feeling. It is so far from being a unique or transcendental phenomenon, that it is but a psychological fact like others. We can observe these approbations at different times, and note the different characters of the objects upon which they are directed. And we have but to observe their existence in the same way as we note in the realm of organic nature the actual existence as facts of different varieties of plants. But in thus handling the subject we are brought a further step in unfolding the idea of value —an advance which we may best begin by considering a further objection. For it will be said that, convincing as this reasoning may be, it yet rests upon an assumption. "In all your arguments you assume the existence of the good man. You deny the special character of the moral ideal, because it is but the formulation of desires. But these desires are the desires of the good man. You deny that obligation is anything but a sentiment, but that, sentiment is the approval felt by the good man. But if you assume the existence of the good man, have you not already assumed the very element which you are endeavouring to explain ? You are able to resolve the value of morality into a sentiment because the possessor of the sentiment contains already the quality which gives the sentiment value. Whether the peculiar essence of morality be described as "oughtness" or as "goodness" matters nothing : in the good man "oughtness" is already existent. Your argument is, therefore, worthless."

This objection seems at first sight a serious one. But it really depends upon failure to apprehend the conditions which determine the existence of morality. The same objection has been urged against the proposition asserted in an earlier page, that the goodness of any particular course of conduct depended on whether such conduct would harmonise with all the other portions of conduct which are required by society, and depended upon nothing but the possibility

of such equilibration. It is asked, "is not this to declare that the goodness of any particular conduct is determined by the social order, and at the same time that the rest of the social order is determined by the goodness of this particular conduct?" Or, to state the same objection in another form, how can we tell whether any particular conduct will conduce to the social equilibrium unless we know first in what that equilibrium consists? In reality, however, there is no circularity in the argument which is impugned, but perhaps a want of power on the part of the impugners to visualise the scene. The various concordant or discordant forces which clamour for settlement adjust themselves one against the other, and the whole order or equilibrium is fixed at the very same moment as it is also fixed what particular elements can enter into this order, and what elements are excluded. There is no pre-existing whole to which the parts need to be adjusted—the whole comes into existence with the adjustment of its parts. Suppose that a number of bodies are endeavouring to form themselves into a compact whole. They are of different shapes and they can contract or expand by altering their height. But their capacity for change is not unlimited but restricted. When they have formed a compact mass each body will have a particular shape and height, but some, through inability to alter their shapes, will not be able to fall into any place at all where they can remain fitted to the other bodies, and they will be excluded. This is a coarse picture of how wishes and sentiments are adjusted to each other in the social equilibrium, and how the individual element is determined at the same time as the whole order, and at the same time as the unsuitable elements are rejected. Here is the necessary justification of seeking for an internal criterion of right and wrong as against any external criterion.

The same reasoning is valid against the objection that in treating what ought to be as merely the sentiments of a good man, and therefore as a mere human psychical fact, we are assuming covertly the elements we have resolved away. The class of good men is created at the same time as it is determined what the moral law and its ordinances are. Those who fall into the social equilibrium are the good, those who fall outside it are the bad. Good and bad, it must be insisted, are only names: names which are applied to certain persons who possess certain sentiments, and to the things which those persons approve. The words are used in the argument to designate the actual concrete men and women and their concrete actions; they imply no

covert conception of value. The argument describes a fact—that in the endeavour to satisfy the claims of one another, it is discovered experimentally that a certain arrangement of observances, or of sentiments, allows a certain number of persons to live together without disintegration from without, and without friction from within, while other persons or other courses of action can neither be got to fit into this arrangement, nor into any stable arrangement. The first set of persons are good, their approval stamps with the character of goodness the actions which they themselves practise; while they stamp with disapproval the actions which are practised by those who are not of their number, and these are the bad. Good men and the moral ideal which formulates their desires are determined together, and the objection which overlooks this process falls to the ground.

It is evident then that the sharp separation which is made between fact and value is made by thinkers who have failed to ask themselves how value itself came to exist, how such a thing as a standard comes to take its place in the world of facts. They have been impressed by the patent difference between the application of a standard to an action, and the action itself, and they have therefore supposed some new and peculiar factor, whereas the moral judgment is nothing but a sentiment which arises when an action comes into friendly or hostile contact with a mass of sentiments. But the business of ethics is to verify the growth of masses of sentiments corresponding to certain social needs. These are the standards of moral judgment; according to them value is allowed to individual actions or persons; the pronouncement of sentence follows inevitably from the existence of these standards. A particular action becomes a point of attachment for the sentiments which compose the standard; they embrace it or repel it, in the same way as an animal assimilates the food which it can utilise, and rejects that which is distasteful, or as it resists all influences which tend to impair its vitality. The growth of standards and the application of these standards is a purely natural process, and the existence of value depends upon this process.

This will become still clearer by considering briefly in what way these standards are formed. The standard itself has been represented as a system of sentiments which have been determined by equilibration, by a process of give and take between all the forces which contend for satisfaction in society. But though the equilibrium is attained experimentally it is not to be imagined that for the formation of each standard of value all the elements of society are ad-

justed to each other by innumerable trials. This would be to disregard the historical growth of ideals. In the course of time new ideals arise by the imposition of modifications upon old ideals. Each ideal as it is formed makes an equilibration of the claims of human nature at any one stage of society. As new claims are evolved, this equilibrium is disturbed, and a new one has to be discovered. This is effected by a process which passes under our eyes every time that a reform is carried. Some individual, or group of individuals, proposes a change, which means some addition to the existing energies of society and some reconstitution of its habits of action and judgment upon actions. This new ideal of social life obtains adherents among the other members of society, and at last it wins its way into acceptance. It is found to create a new equilibrium of social sentiments, and this implies that certain individuals whose sentiments cannot bend into compliance with the new order will be excluded from the circle of good men. The new order is established at the cost of a new demarcation of good from bad. This is the result of a veritable trial of strength between the new order and the old. The new order, which on the course of its way to acceptance has become variously modified through contact with many minds and their effective desires, has by virtue of its own inherent suitability to the needs of its society driven out of the field all rival claimants. Its victory is the separation of actions which accord with itself, under the name of good actions, from actions which do not accord with itself, under the name of bad actions. The power of forecasting the needs of his society is the genius of the successful reformer. This success may not be enjoyed by himself, but when it at last arrives it has introduced a new form of social organisation which has expelled the older form. Something of what was once good has now become excluded, and therefore bad.

The experiment by which social equilibrium is attained is therefore a process in which many guesses are made at the future ideal, and some one of these enlists on its side all the force of public sentiment as the result of a struggle with all the rest and with existing standards. By perpetual repetition of this process, as human nature enlarges and refines, the moral ideal moves on from age to age. At each step a new standard of value is created by the struggle between conflicting ideals of social good. It is evident that this process by which morality changes its standards resembles the process by which in lower forms of life than

ours new organisms are developed, new forms of healthy and possible life. Moral ideals are but forms of healthy social life. But this is not the place either to draw out the identity at length, or to exhibit those characteristics which give human history the appearance of utter unlikeness to the growth of lower forms. That this dissimilarity is only apparent it would not be difficult to show were this the proper occasion. One thing only needs special remark : that the gradual disappearance of brute struggle between individual men, and its supersession by united action, is not only not in conflict with the theory of the growth of morality by perpetual conflict between good and bad, but is in completest accordance with that theory. For it means that an order of things which is based on individual competition is replaced by a new order of things which is based on co-operation. Love, benevolence, toleration, humanity, a common science, a common culture—all these are new forces which arise in the growth of human nature, which can only take effect through a society more closely bound together, more careful of the single life. It is this more highly organised form of society which conflicts with one which allows freer play to the brute struggles of individuals. The very result of the struggle between different ideals of social life is to diminish the struggle between individual lives.

But these verifications of the central fact are unnecessary for our purpose. The central fact remains that moral standards represent a victory gained by persons with one ideal of social life, one set of desires, over persons with different sentiments. This is an induction from the facts of moral life, no twisting of moral data into conformity with ideas derived from other sources. But from this exposition of the natural growth of standards of value we see more closely than before, that fact and value do not stand opposed to each other, that the valuable, or what ought to be, as opposed to what is valueless, or what ought not to be, is the mere expression of the fact that a solution has been attained of the problem how to reconcile certain sentiments into one organised whole ; is an effect due to the creation of a new body of sentiments, which has authority over any of its members and has power to crush by its condemnation all sentiments which resist.

We are thus brought appreciably nearer the object of our inquiry. For we see, in the first place, that value is something capable of explanation, that it is a particular phenomenon which arises in the ordinary course of development.

The mystery which hedges round the names of duty and right and ideal disappears when we have ceased to confound practical inviolability with scientific uniqueness. These sacred names are names which attach to sentiments which have acquired for themselves a position of superiority in the conflict with other sentiments. And, in the second place, we are able to give a more precise account of what constitutes value now that we have seen how it arises. For the standard of value is the social equilibrium, or, if we prefer to use biological language, the conditions which make up social vitality or social health. The value of any particular action or of any individual is the efficiency of the action or the individual for the social equilibrium, and depends upon whether the action is of such a kind as to be adapted to this equilibrium or, in looser language, to promote it. Morality is at any one time an organic whole, all the parts of which have value as contributory elements. The different things which have value for morality, have value in the same way as the parts of a steam engine or of an animal. The object of the steam engine is to perform a certain work of traction, the different parts are designed to work smoothly on each other with a view to this end. Instead of material or merely vital elements, suppose the elements to be conscious, as they are in the moral organism, and the efficiency of each part for the work of the whole takes the particular shape which we know under the name of value. Value is the efficiency of an organ which is conscious of its own functions, and on occasion can be conscious of the functions of the whole organism which it subserves. It will be understood that in speaking of an action as a conscious part of the moral organism I am using a shorthand expression for the agent as performing the action.

The affinity of value in moral judgments to value in economics, an affinity which must not, however, be pressed very far, becomes apparent. Exchange value is the amount of commodities for which a given commodity will exchange. A given kind of goods, A, is exchanged in a certain proportion for certain quantities of other kinds of goods, C, D, and the like. A is worth having and worth exchanging at a certain price. The moral ideal implies a similar exchange. There are many individuals who compose a certain society. Each contributes to the common stock a certain class of actions determined by his peculiar character and position, on condition that his fellow-citizens contribute other actions from their side. Good conduct is an exchange of services. And just as economical exchange is in principle an attempt

to secure to each person the maximum gain, under the limitations which social life imposes, so also does the moral ideal represent the maximum advantage both of the good individual and of the society as a whole to which he belongs.

The argument has attempted to define the value of individual actions or persons. Nothing has been said of the value of the ideal or standard itself. In fact, though we sometimes speak loosely of moral ideals as possessing value, as being precious or priceless, the ideal itself does not possess value; it constitutes or is value. It is the measure by which value is determined, but it is itself, as a whole, not subject to measurement by an external standard. A value, a certain standard of estimation, is determined by each step in the history of morality through which good is distinguished from bad. As the successful organisms in the battle of life are the fit, the successful ideals in human history are the valuable. But by this we mean that only that has value which is comprehended under the moral law; we cannot go beyond the record and ask whether there is any value in morality, or of what use is it to be moral. We cannot do so because it is morality itself which gives us our idea of what is useful. In declaring certain actions to be good, or certain types of character, we exhaust all our knowledge of what usefulness or worth in human life implies. To ask of what use is it to be moral is the same thing as to ask of what use is the process which creates the distinction of usefulness and worthlessness—it is to confuse the process with its products. This remark is not so obvious but that it has escaped the notice of those who with the pessimists cry out, what is the use of living? If you can show me where living competes with non-living, and on which side the question is decided, I will allow that life itself can be tried by the standard of use or value. Till you do so I can attach no meaning to the question. The question to which I can attach a meaning is the question, what form of life has use or worth? This question is answered by the history of morality. Under given circumstances, the life which has worth is the good life—the bad life is worthless. But this will seem a cold and comfortless answer to those faithful ones who choose to labour loyally in spite of suffering; and there is indeed more behind, which is already contained in the answer just given. For the sufferings endured under any social system may be removable, and may clamour to be removed. Where such a sentiment exists demanding the mitigation of certain pains, a new moral standard is in the making. And it is to this new standard that the complaints

of life appeal. This appeal corroborates the truth of the theory which is here explained. Morality is no settled thing fixed once and for ever, but is for ever changing as new sentiments arise, between which and those already in existence an equilibrium has to be found. Where certain institutions are felt as intolerable, the new standard says that this form of life is so far without value: that which has value is a new form which shall do justice to the later growths of human nature. But this form of life is still a form of *life*. It neither believes nor disbelieves that life itself has value—but it creates a new standard of value.

Pessimism is based on the belief that the worth of life or of any part of life is measured by the pleasure it produces; and the mention of pessimism is a natural transition to this general doctrine, which is, at anyrate in this country, perhaps the most widely entertained of all ethical doctrines. Pleasure is always with us in ethics, and many persons will regard with dismay the prospect of a discussion of pleasure at the end of a paper which has already reached a considerable length. But some discussion is unavoidable, and I will endeavour to be as short as is possible consistently with not being dogmatic. I have maintained that the value of a good act or a good man is measured by its efficiency towards maintaining the social equilibrium. But this theory would pretend to go further and to explain the value of an act by its capacity of producing excess of pleasure over pain, and therefore adding to the sum of pleasures which is held to be the end of moral activities. Pleasure has been so long and so unhesitatingly maintained to be both the aim of moral action and the criterion of moral value that it is no wonder if criticism has inclined to the other extreme, and denied to pleasure any place whatever in these functions. With the particular shape which this criticism has taken in the writings of T. H. Green and his followers it is impossible to agree, if only because in their anxiety to point out errors in the theories of hedonistic writers they have altogether perverted the true proportions of the thing pleasure as we know it in real life. Yet, if I do not mistake the drift of these criticisms, they have value so far as they tend to make us see that the true position of pleasure in determining moral standards must be sought not so much in the sum of pleasures as in their distribution. But this needs further explanation.

Let us begin by making the largest admissions on behalf of pleasure. It is true that any valuable act produces in the end an excess of pleasure over pain, and it is true that the

moral order produces the greatest possible sum of pleasures, in the only sense which can be attached to that phrase. It is true that the most successful form of social life is that which produces most pleasure. And it is rightly urged that this is secured by the machinery of nature, which provides that lives which produce more pain than pleasure are exterminated. It is true also that our desires are directed towards securing pleasure in so far as that we do not desire any object without presenting it to ourselves as desirable. All these truths seem to support the belief that value and pleasure are identical. But it is one thing to lay down these propositions which do but represent definite facts, and another thing to conclude from them that therefore pleasure is the primary element to which value has reference. It is possible to measure value by pleasure, while at the same time value may be founded not upon pleasure but upon something else of which pleasure is also a necessary attendant. That this latter alternative is the true one may be seen most simply from the following consideration. Given the character of a man or of the society of which he forms a part, the activities which are most suitable to this character necessarily produce the greatest amount of pleasure. But the choice of the activities depends upon the character of the man and not upon the pleasure which results from gratifying them. Different men take pleasure in different things; the good man in different things from the bad man. But the good man acts as he does because he must, because his sentiments are directed to goodness, and he does not do so directly because of the pleasure which either accrues to him from the act or is suggested to him by the idea of the act. To hold that he does so is to confuse an effect with a cause. Pleasure follows from his act, but his act is of a kind determined by his character; pleasure is suggested to him by the idea of the action, but this pleasure attaches to an action of a certain kind which is suggested to him by his character. In every case the character of the man, and consequently the quality of his actions, is the primary element; pleasure arises from the fact that such an action accords with his character, and it is always experienced in connexion with the action and has no separate existence apart from the action or apart from the character to which the action makes appeal.

The only difficulty which can be raised against this statement arises from the fact that we do learn by experience of pleasures and pains to modify our conduct, repeating what produces an excess of pleasure over pain, and avoiding what

produces an excess of pain over pleasure. But the difficulty vanishes on considering that pleasure and pain are nothing but synonyms for the successful or unsuccessful, suitable or unsuitable, exercise of our powers, or at least arise from these sources. The reason why we avoid what is painful is not the pain, which is merely the fact that the action is painful, but our temperament or character, which seeks expression in modes which are suitable and therefore cause pleasure. When we suffer pain on the whole, that is, when our pleasure is outweighed by our pain, either something has happened which is in discord with our character, or our character is itself in the process of change. We have an instance of the first whenever any bad act is committed. The pain which the action causes indicates that the action has on the whole impeded the energies of the society, has disturbed the equilibrium of society, and this is the reason why it causes pain. We have an instance of the second kind when some recognised institution of society begins to pinch and cause suffering. We avoid the suffering by creating a fresh institution, and therefore by altering so far the elements which go to make up the standard of good character in the society. But the reason why the change takes place is the development of these new elements in persons; the pain which is caused by the old institutions is the revelation of this new development. Thus the pain which leads to change of ideals, and the pleasure which leads to persistence in the old, testify in the one case to the growth of character, in the other case to its persistence. The point is worth further consideration, for the belief that pleasure and pain are the foundation of our moral ideals and therefore of our standards of value is exactly analogous to the belief that natural selection in the animal world is the *cause* of the growth of new forms of life. As has often been pointed out, the struggle for survival represents not the cause of growth but its method. The causes which produce the origin of new forms are, if we put aside the birth of variations, the constitution of the contending organisms. These struggle with each other, the result of the struggle being determined by the combined action of the combatants' qualities under the conditions which are supplied by the environment. The incidents of this struggle are the gratifications which follow any victory, and the pains which follow any defeat. These are the indications that the successful organism is fit to live. But its fitness consists in the qualities which give it this superiority over other forms. Now we have seen how the growth of standards of value repeats

this process. The pains which lead to a new standard mean that the old standard is being vanquished in the struggle, but the valuelessness of the old in comparison with the new depends, as in the case of animal development, on the absence from the old of those qualities which give the new standard its utility. Moral ideals conquer, and value, therefore, arises in virtue of the qualities of the ideal, that is, of the men who give the ideal its living expression.

Now since it is the constitution of the organism, no matter whether that organism be the mental organism of the individual man or the organism of the whole society, which determines its actions, it is plain that the value of conduct must depend on the balance between the exercise of the different parts of its constitution. Undoubtedly the most healthy exercise produces the greatest possible pleasure, but that result can only be obtained by the exercise in proper order and in proper frequency of the various organic factors. The reason why a factory whose hands are well-paid, well-fed, and kept in healthy rooms is of greater value than a factory where hands are overworked, and ill-fed and put to work in stifling rooms, is not that the output of the first is greater, but on the contrary the output is greater because of the excellence of the arrangement. In like manner the greatest possible pleasure is a measure of value only because the sum is made up of the pleasures belonging to the different elements of human nature exercised in proper proportion and frequency. Given this distribution of the elements, we have a corresponding distribution of pleasures, and the sum total of pleasure is a maximum. But this maximum can serve as a test of value only because of the real cause of value, the law of distribution.

To investigate more fully the position of pleasure would require another paper. I have put the matter in the simplest way which occurred to me as possible without entering into vexed questions. One such question is the question whether pleasure can be truly said to be of the same kind everywhere, and not rather different in kind according to the different exercise of the human character which it accompanies. I leave such questions untouched, and found the case entirely on the secondary position of pleasure. Pleasure is a vital element of the whole moral life, but it exists only in combination with other elements. It is a function of character: character is not a function of pleasure. Character is the determining cause of our ideals, and on it, the determining cause, the idea of value is founded.

Not therefore the sum of pleasures is the essential feature

of morality if we regard morality from the point of view of pleasure, but the particular way in which this sum is arrived at by obtaining pleasures from exercising the various elements of character—in a word, what I described above as the distribution of pleasures. The distribution of pleasures corresponds with the distribution of energies in the moral organism. Now it is this very idea of distribution of energies which is covered by the idea of efficiency. In declaring value to be the efficiency of an act towards furthering or producing the social equilibrium, we are in effect declaring that value depends on the distribution of work, the division of labour required for this equilibrium. A man is valuable according as he is efficient to promote the work of society, and on the other hand society, being itself the standard of value, has the title to be such because it promotes the efficiency of each individual—these two results, the equilibrium of the whole society and the efficiency of each person in it, being effected at the same moment.

To conclude, I have endeavoured to state and demonstrate two main principles. The first is that value is nothing but the efficiency of a conscious agent to promote the efficiency of society, to maintain the equilibrium of forces which that society represents. This appeared at first directly from inquiring into what the moral standard was and how it arose. And it was maintained indirectly in opposition to the view that value was determined by pleasure. Recognising that pleasure was truly a measure of value, we saw that it was such only because it itself depended on a true distribution of portions of pleasure, which distribution was itself the cause of the prosperity of the moral standard. The other result at which we arrived was that value is itself not something separable from other mental facts by a wide gulf, but was itself a fact of a purely natural order. The standard of value or ideal we saw to be but the formulation of desires, and the value of each separate part of the standard to be in return nothing but a sentiment of approval of certain actions or certain characters. In this way the idea of value becomes something which we can describe and discuss and put into relation with all other facts of organic life, and the exposition has served to verify that view of the method of ethics (and with it of æsthetics and the science of truth) which removes these sciences from the domain of metaphysics, and classes them as the last or psychical class of the natural sciences.

#### IV.—THE CHANGES OF METHOD IN HEGEL'S DIALECTIC. (I.)

By J. ELLIS McTAGGART.

My object in this essay will be to show that the method by which Hegel proceeds from one category to another in his logic is not the same throughout, but is materially different in the later categories from the form to be found in the earlier stages. I shall endeavour to show that these changes can be reduced to a general law, and that from this law we may derive important consequences with regard to the general nature and validity of the dialectic.

The exact relations of these corollaries to Hegel's own views is rather uncertain. Some of them do not appear to be denied in any part of the logic, and, since they are apparently involved in some of his theories, may be supposed to have been recognised and accepted by him. On the other hand, he did not explicitly state and develop them anywhere, which, in the case of doctrines of such importance, is some reason for supposing that he did not hold them. Others, again, are certainly incompatible with his express statements. I desire, therefore, in considering them to leave on one side the question of how far they were believed by Hegel, and merely to give reasons for thinking that they are necessary consequences of his system, and must be accepted by those who hold it.

The passage in which Hegel sums up his position on this point most plainly is to be found in the *Smaller Logic*, Section 240, and runs as follows: "The abstract form of the continuation or advance is, in Being, another (or antithesis) and transition into another; in the Essence, showing or reflexion in its opposite; in the Notion, the distinction of the individual from the universality, which continues itself as such into, and forms an identity with, what is distinguished from it".

The difference between the procedure of Being and that of Essence is given in more detail in Section 3, lecture note. "In the Sphere of Essence one category does not pass into another, but refers to another merely. In Being the form of reference or connexion is purely a matter of our own reflexion: but it is the special and proper characteristic of

**Essence.** In the Sphere of Being, when somewhat becomes another, the somewhat has vanished. Not so in Essence: here there is no real other, but only diversity, the reference of one category to its antithesis. The transition of Essence is therefore at the same time no transition; for in the passage of different into different, the different does not vanish: the different terms remain in their connexion. When we speak of Being and Nought, Being is independent, so is Nought. The case is otherwise with the Positive and the Negative. No doubt these possess the characteristics of Being and Nought. But the positive by itself has no sense; its whole being is in reference to the negative. It is the same with the negative. In the Sphere of Being the reference of one term to the other is only implicit; in Essence, on the contrary, it is explicitly stated. And this in general is the distinction between the forms of Being and Essence: in Being everything is immediate, in Essence everything is relative."

And again, in describing the transition from Essence to the Notion, he says (*Enc.* Section 161, lecture note): "Transition into something else is the dialectical process within the range of Being; reflexion (bringing something else into light) in the range of Essence. The movement of the Notion is development; by which that only is explicitly affirmed which is already naturally and properly speaking present. In the world of nature, it is organic life that corresponds to the grade of the notion. Thus, *e.g.*, the plant is developed from its seed. The seed virtually involves the whole plant, but does so only ideally or in thought; and it would therefore be a mistake to regard the development of the root, stem, leaves, and other different parts of the plant as meaning that they were realiter present, but in a minute form, in the germ. That is the so-called 'box-within-box' hypothesis; a theory which commits the mistake of supposing an actual existence of what is at first found only in the shape of an ideal. The truth of the hypothesis on the other hand lies in its perceiving that, in the process of development, the Notion keeps to itself, and only gives rise to alteration of form without making any addition in point of content. It is this nature of the Notion—this manifestation of itself in its process as a development of its own self—which is the point noted by those who speak of innate ideas in men, or who, like Plato, describe knowledge merely as reminiscence. Of course that again does not mean that everything which is embodied in a mind, after that mind has been formed by instruction, had been present to it beforehand in a definitely expanded shape.

"The movement of the Notion is after all a sort of illusion. The antithesis which it lays down is no real antithesis. Or, as it is expressed in the teaching of Christianity, not merely has God created a world which forms a kind of antithesis to Him; He has also from all Eternity begotten a Son, in whom He, a spirit, is at home with Himself."

2. The result of this process may be summed up as follows: The further the dialectic goes from its starting-point the less prominent becomes the apparent stability of the individual finite categories, and the less do they seem to be self-centred and independent. On the other hand, the process itself becomes more evident and obvious, and is seen to be the only real meaning of the lower categories. In Being each category appears, taken by itself, to be permanent and exclusive of all others, and to have no principle of transition in it. It is only outside reflexion which examines and breaks down this pretence of stability, and shows us that the dialectic process is inevitable. In Essence, however, each category by its own import refers to that which follows it, and the transition is seen to be inherent in its nature. But it is still felt to be, as it were, only an external effect of that nature. The categories have still an inner nature, as compared with the outer relations which they have with other categories. So far as they have this inner nature, they are still conceived as independent and self-centred. But with the passage into the Notion things alter; that passage "is the very hardest, because it proposes that independent actuality shall be thought as having all its substantiality in the passage, and in the identity with the independent actuality confronting it". (*Enc.* Section 159.) Not only is the transition now necessary to the categories, but the transition *is* the categories. The reality in any finite category consists only in its summing up those which went before, and in leading on to those which come after.

Correlative with this change, and connected with it, is another. In the categories of Being the typical form is a transition from a thesis to an antithesis which is merely complementary to it, and is in no way superior to it in value or comprehensiveness. Only when these two extremes are taken together is there for the first time any advance to a higher Notion. This advance is a transition to a synthesis which comes as a consequence of the thesis and antithesis jointly. It would be impossible to obtain the synthesis, or to make any advance, from either of the two complementary terms without the other. Neither is in any respect more advanced than the other, and neither of them can be said to

be more closely connected with the term in which both of them alike find their explanation and reconciliation. But when we come to Essence the matter is changed. Here the transition from thesis to antithesis is still indeed from positive to negative, but it is more than merely this. The antithesis is not merely complementary to the thesis, but is a correction of it. It is consequently more concrete and true than the thesis and represents a real advance. And the transition to the synthesis is not made so much from the comparison of the two previous terms, as from the antithesis alone. For the antithesis has not merely the contrary defect to the thesis, but it has to some extent corrected the mistake, and therefore has—to use the Hegelian phraseology—"the truth" of the thesis more or less within itself. As the action of the synthesis is to reconcile the thesis and the antithesis, it can only be deduced from the comparison of the two. But if the antithesis has—as it has in Essence—the thesis as part of its own significance, it will present the whole of the data which the synthesis requires, and it will not be necessary to recur to the thesis, before the step to the synthesis is taken.

But although the reconciliation can be inferred from one term of the pair without the other, a reconciliation is still necessary. For, although the antithesis is an advance upon the thesis, it is also opposed to it. It is not simply a completion of it, but also a denial, though a denial which is already an approximation to a union. This element of opposition and negation tends to disappear in the categories of the Notion. Here the steps are indeed discriminated from one another, but they can scarcely be said to be in opposition. For we have now arrived at a consciousness more or less explicit that in each category all that have gone before are summed up, and all that are to come after are contained implicitly. "The movement of the Notion is after all a kind of illusion. The antithesis which it lays down is no real antithesis." And, as a consequence, the synthesis merely completes the antithesis, without correcting one-sidedness in it, in the same way as the antithesis merely expands and completes the thesis. As this type is realised, in fact, the distinctions of the three terms gradually lose their meaning. There is no longer an opposition produced between two terms and mediated by a third. Each term is a direct advance on the one before it. The object of the process is not now to make the one-sided complete, but the implicit explicit. For we have reached a stage when each side carries in it already more or less con-

sciousness of that unity of the whole which is the synthesis, and requires development rather than refutation.

That these changes should accompany the one previously mentioned is natural. For, as it is gradually seen that each category, of its own nature, and not by mere outside reflexion on it, leads on to the next, that next will have inherent in it its relation to the first. It will not only be the negation of the first, but it will know itself to be such. It will not only be the complement of the thesis, but it will be aware that it is a complement, and will know what it is that it completes. In so far as it does this, it will be higher than the thesis. For, although each category will see that it is essential to it that it should be connected with the other, this can do nothing in the thesis but give a general character of transitoriness to it, for it only knows that it is connected with something, but does not yet know with what. But the antithesis knows with what it is connected, for we have already passed through the thesis before we can reach it, and it is through the thesis that we have come to it. And to know that it is inseparably connected with its opposite, and defined by its relation to it, is an important step towards the reconciliation of the opposition. *A fortiori* the greater clearness and ease of the transition will have this effect in the case of the Notion. For there we see that the whole meaning of the category lies in its passage to another. The second, therefore, has the whole meaning of the first in it, as well as the addition that has been made, and must therefore be higher than the first.

From this follows the different relation to the synthesis. For the result of the more or less complete inclusion of the thesis in the meaning of the antithesis is, as we have seen, the possibility of finding all the data required for the synthesis in the antithesis alone, while the completely successful absorption of each term in its successor tends to obliterate the triple distinction altogether, in which case each term would be a simple advance on the one below it, and would be deduced from that one only.

While Hegel expressly notices, as we have seen, the increasing freedom and directness of the dialectic movement, he makes no mention of the different relation to one another assumed by the various members of the process, which I have just indicated. Traces of the change may, however, be observed in the detail of the dialectic. The three most significant triads to examine for this purpose will be the first in the division of Being, the middle one in the division of Essence, and the last one in the division of the Notion.

For, if there is any change within each of these three great divisions (a point we must presently consider) the special characteristics of each division will be shown most clearly at that point in which it is at the greatest distance from each of the other divisions. The triads in question are those of Being, Not-Being, and Becoming; of the World of Appearance, Content and Form, and Ratio; and of Life, Cognition, and the Absolute Idea.

Now, in the first of these, thesis and antithesis are on an absolute level. Not-Being is no higher than Being: it does not contain Being in any sense in which Being does not contain it, it is as easy to pass from Not-Being to Being as *vice versa*. And Not-Being by itself is helpless to produce Becoming—as helpless as Being is. The synthesis can only come from the conjunction of both of them. On the other hand, the idea of Content and Form, according to Hegel, is a distinct advance on the idea of the World of Appearance, since in it "the connexion of the phenomenon with self is completely stated". Ratio, again, although the synthesis of the two previous terms, is deduced from the second of them alone, while it could not be deduced from the first. It is the relation of form and content to one another which leads us on to the other relation which is called Ratio. (*Enc.* Section 134.) And, again, the idea of Cognition is a distinct advance upon the idea of Life, since the defect in the latter from which Hegel explains the existence of death is overcome as we pass to cognition. And it is from Cognition alone, without any reference back to Life, that we reach to the Absolute Idea, which is derived from the consideration of the perfect form of Cognition proper and of the perfect form of Volition—which latter also forms part of the antithesis, under the general name of Cognition.

3. Another point arises, on which we shall find but little guidance in Hegel's own writings. To each of the three great divisions of the dialectic he has ascribed a peculiar variation of the method. Are we to understand that one variety changes into another suddenly at the transition from division to division, or is the change continuous, so that, while the typical forms of each division are strongly characterised, the difference between the last step in one and the first step in the next is no greater than the difference between two consecutive steps in the same division? Shall we find the best analogy in the distinction between water and steam,—a qualitative difference suddenly brought about when a quantitative change has reached a certain point, or in the distinction between youth and manhood, which at

their most characteristic points are clearly distinct, but which pass into one another imperceptibly?

On this point Hegel says nothing. Possibly it had never presented itself to his mind. But it seems to me that traces may be observed throughout his logic which may lead us to believe that the change of method is gradual and continuous.

In the first place, we may notice that the absolutely pure type of the process in Being occurs in the first triad only. Being and Not-Being are on a level. But if we compare Being *an sich* with Being for another, the One with the Many, mere Quantity with Quantum, the Infinite Quantitative Progression with the Quantitative Relation, and the Rule with the Measureless, we observe that the second category is higher than the first in each pair, and that it is not merely the complement of the first, but to a certain degree transcends it. And the inherent relation of thesis to antithesis seems to develop more as we pass on, so that before Essence is reached its characteristics are already to some measure visible, and the mere passivity and finitude of Being itself is broken down.

If, again, we compare the first and last stages of Essence, we shall find that the first approximates to the type of Being, while the last comes fairly close to that of the Notion, by substituting the idea of development for that of the reconciliation of contradictions. Difference, as treated by Hegel, is certainly an advance on Identity, and not a mere opposite, but there is still a good deal of opposition between the terms. The advance is shown by the fact that Difference contains Likeness and Unlikeness within itself (*Enc.* Section 117), while the opposition of the two categories is clear, not only in common usage, but from the fact that the synthesis has to reconcile them, and balance their various deficiencies. But when we reach Substance and Causality we find that the notion of contradiction has almost vanished, and that the notion of development has taken its place nearly as completely as could happen if we were already in the sphere of the Notion.

So, finally, the special features of the dialectic in the Notion are not fully exhibited till we come to its last stage. In the transition from the Notion as Notion to the Judgment, and from the Judgment to the Syllogism, we have not entirely rid ourselves of the elements of opposition and negation. It is not till we reach the concluding triad of the Logic that we are able fully to see the typical progress of the Notion. In the transition from Life to Cognition, and from Cognition to the Absolute Idea, we perceive that the

movement is all but completely direct, that the whole is seen as in each part, and that there is no longer a contest, but only a development.

4. Much weight, however, cannot be placed on all this, partly because of the extreme difficulty of comparing, quantitatively and exactly, shades of difference so slight and subtle, and partly because Hegel nowhere explicitly mentions any continuous process, and there is therefore some ground for supposing that the continuity, if it existed, had escaped his notice. But the fact that some traces of such a continuous development are found in his logic may be some additional support, if we are able to conclude that such a development would, in a correct dialectic, be continuous.

Before we consider this question we must first inquire whether the existence of such a development of method of any sort, whether continuous or not, might be expected from the nature of the case. We shall see that there are reasons for supposing this to be so, when we remember what we must regard as the essence of the dialectic. The motive power of the whole process is the concrete absolute truth, from which all finite categories are mere abstractions, and to which they spontaneously tend to return. Again, two contradictory ideas cannot be held true at the same time. If it ever seems inevitable that they should be, this is a sign of error somewhere, and we cannot feel satisfied with the result, until we have transcended and synthesised the contradiction. It follows that in so far as the finite categories announce themselves as permanent, and as opposed in pairs of unsynthesised contradictions, they are expressing falsehood and not truth. We gain the truth by transcending the contradictions of the categories and by demonstrating their instability. Now the change in the method, of which we are speaking, indicates a clearer perception of the truth. For we have seen that it becomes more spontaneous, and more direct. As it becomes more spontaneous, as each category is seen to lead on of its own nature to the next, and to have its meaning only in the transition, it brings out more fully what lies at the root of the whole dialectic—that truth, namely, lies only in the synthesis. And as the process becomes more direct and leaves the opposition and negation behind, it also brings out more clearly what is an essential fact in every stage of the dialectic,—that is, that the impulse of our imperfect truth is not towards self-denial as such, but towards self-completion. The essential nature of the whole dialectic is thus more clearly seen in the later stages, which approximate to the type of the Notion,

than in the earlier stages, which approximate to the type of Being.

This is what we might expect *a priori*. For the content of each stage in the dialectic is nearer to the truth than that of the stage before it. And each stage forms the starting-point and the premise from which we go forward again to further truth. And, therefore, as at each step in the forward process we have a fuller knowledge of the truth than at the last, it is only natural that that fuller knowledge should react upon the manner in which the step is made. The dialectic is due to the relation between the concrete whole, implicit in consciousness, and the abstract part, explicit in consciousness. Since the second element alters at each step, as the categories approximate to the complete truth, it is clear that the relation between it and the unchanging whole alters also, and this must affect the process. Just as the velocity of a falling body increases, because (among other reasons) each moment brings it nearer the attracting body, and increases the power of the attraction, so every step which we take towards the full truth renders it possible to proceed more easily and more directly to the next step.

Even without considering the special circumstance that each step in the process will give us this deeper insight into the meaning of the work we are carrying on, we might find other reasons for supposing that the nature of the dialectic process is modified by use. For the conception of an agent which is purely active, acting on a material which is purely passive, is a mere abstraction, and finds a place nowhere in reality. Even in dealing with physical examples we find this. An axe has not the same effect at its second blow as at its first, for it is more or less blunted. A violin has not the same tone the second time it is played on as the first. And a conception which is inadequate even to the relations of matter must be still more unfit for application to mind when engaged on its most characteristic task. Here least of all could a rigid distinction be kept up between form and matter, between instrument and materials.

And these arguments for the existence of change in the method are also arguments for supposing that the change will be continuous. There is reason to expect a change in the method whenever we have advanced a step towards truth. But we advance towards truth, not only when we pass from one chief division of the logic to another, but whenever we pass from category to category, however minute a subdivision of the process they may represent. It would therefore seem that a change in method is to be

expected after each category, and that no two transitions throughout the dialectic present quite the same type. However continuous the change of conclusions can be made, the change of result must be equally continuous.

Besides this, we may observe that the change of method is connected with the change from one to the other of the three great divisions of the dialectic, which respectively form the thesis, antithesis, and synthesis of an all-comprehensive triad. It is thus the change from thesis to antithesis, from antithesis to synthesis, or from synthesis to a fresh thesis, which is accompanied by a change of method. But the dialectic within each of the three stages, Being, Essence, and the Notion, is not looked upon as a continuous flow of thought, but is broken up again into subordinate triads, and these are again broken up into others which are still lower. Wherever the observation of thought and its consequent division are carried closer than before, we find that it takes place only by the discovery within each member of a triad of a fresh subordinate triad, and this only ceases when we have reached the furthest point of minuteness to which we are able or willing to carry our scrutiny. Consequently the change in method which is caused by a transition from member to member of the dialectic must occur, not twice only in the whole system, but wherever any step in thought is made, however minute that step may be. Whether it is or is not correct to ascribe the change in method to the increasing truth and adequacy of each category, it cannot be doubted that in some way or other they are concomitant, and as the one has many gradations in each of the three largest divisions, we have an additional reason for supposing that such gradations may also be found in the other.

5. We may, therefore, I think, fairly arrive at the conclusion, in the first place, that the dialectic process does and must undergo a progressive change, and, in the second place, that that change is as much continuous as the process of the dialectic itself. Another question now arises: Has this change in the method destroyed its validity? The ordinary proofs relate only to characteristic of Being, which, as we have now found reason to believe, is only found in its purity in the very first triad of all. Does the gradual change to the types characteristic of Essence and the Notion make any difference in the justification of the method as a whole?

It would seem that it does not do so, because the force of the process is the same throughout. It consisted, in the first division of the Logic, of a search for completeness, and of a search for harmony between the elements of that com-

pleness, and these two stages are separate. Later on we have the same search for completeness and harmony, but they are combined in a single operation. In Being, the inadequacy of the thesis led on to the antithesis. Each of these ideas was regarded as an immediate and self-centred whole. On the other hand each of them implied the other, since they were complementary and opposite sides of the truth. This brought about a contradiction, which had to be reconciled by the introduction of the synthesis. Now the change in the process has the effect of discarding the intermediate stage in which the two sides of the whole are viewed as incompatible and yet inseparably connected. For in the stage of Essence each category has a reference in its own nature to those which come before and after it. So far as the thesis refers to the antithesis which has not yet been reached, this is a reference to the as yet unknown, and does not much extend the positive content of the idea. But with the antithesis, in its reference to the thesis, which is already known, the thing is different. We have here a sort of anticipation of the synthesis, in the recognition that the two sides are connected by their own nature, and not merely by external reasoning. The result of this is that the harmony is, to a certain extent, given by the same step which gives us the completeness, and ceases to require a separate process. For when we have seen that the categories are essentially connected, we have gone a good way towards the perception that they are not incompatible. The harmony thus attained in the antithesis is, however, merely partial, and leaves a good deal for the synthesis to do. In the Notion, the change is carried farther. Here we have the perception that the whole meaning of the category resides in the transition, and the whole thesis is really summed up in the antithesis, for the meaning of the thesis is thus only the production of the antithesis, and it is therefore summed up and transcended in the latter. In fact the relation of thesis, antithesis and synthesis would actually disappear in the typical form of the process as exhibited in the Notion, for each term would be the completion of that which was immediately before it, since all the reality of the latter would be seen to be in its transition to its successor. That this never actually happens, even in the final triad of the whole system, is due to the fact that the characteristic type of the Notion, as the last stage of the dialectic, represents the process as it would be when it started from a perfectly adequate premise. When however the premise, the explicit idea in the mind, became perfectly adequate and true, we should have rendered ex-

plicit the whole concrete idea, and the object of the dialectic process would be attained, so that it could go no further. The typical process of the Notion is therefore an ideal, to which the process approximates more and more closely throughout its course, but which it can only reach at the moment when it stops completed.

Thus it will be seen that the change may be expressed as the gradual disappearance of the explicit synthesis from without of two complementary truths which apart from that synthesis would be contradictory. This disappearance is due to the fact that the terms are gradually seen with greater and greater clearness, only to exist, first if related to one another, and then as related to one another, and consequently to carry their synthesis and harmony in themselves. No element in the original process is left out, and no fresh one introduced, but the two operations which had at first to be performed independently, and almost, as it were, in opposition to one another, the second destroying the contradictions which it seemed the chief result of the first to produce, are now seen to be inherently connected. If, therefore, any proof which may be given of the validity of the dialectic method in its earlier stages be correct, we are entitled to say that for the same reasons it is valid through all its changing forms.

6. From this change in the method some very important inferences may be drawn. The first of these is one which we may fairly attribute to Hegel himself, because, although he does not explicitly mention it anywhere, yet it is clear from the deduction of the categories as given by him. This is the subordinate place held by negation in the whole process. Independently of this change we could observe that the importance of negation in the dialectic is by no means primary. In the first place, Hegel's logic is very far from resting, as is supposed by some people, on the violation of the law of contradiction. It rather rests on the impossibility of violating that law, on the necessity of finding, for every contradiction, a reconciliation in which it vanishes. And not only is the idea of negation destined always to vanish in the synthesis, but even its temporary introduction is an accident, though an inevitable accident. The motive force of the process lies in the discrepancy between the concrete and perfect idea implicitly in our own minds, and the abstract and imperfect idea explicitly in our minds, and the essential characteristic of the process is in the search of this abstract and imperfect, not after its negation as such, but after its complement as such. It happens

that its complement was also its contrary, because it happens that a concrete whole is always analysable into two direct contraries, and therefore the process always does go from an idea to its contrary. But it does not go to it because it seeks denial, but because it seeks completion.

But this can now be carried still further. Not only is the presence of negation in the dialectic a mere accident, though a necessary one, of the gradual completion of the idea. We are now led to consider it as an accident which is necessary indeed in the lower stages of the dialectic, but which is gradually eliminated in proportion as we proceed further, and in proportion as the materials from which we start are of a concrete and adequate character. For in so far as the process ceases to be from one extreme to another extreme equally one-sided, both of which regard themselves as permanent and as standing in a relation of opposition towards one another, and in so far as it becomes a process from one term to another which is recognised as in some degree mediated by the first, and as transcending it,—in so far the negation of each category by the other disappears. For it is then recognised that in the second category there is no contradiction to the first, because, inasmuch as the change has been completed, the first is found to have its meaning in the transition to the second.

The presence of negation, therefore, is not only a mere accident of the dialectic, but not even an invariable accident. Its presence, when it does occur, is indeed necessary, but it vanishes as the process goes further, and the subject-matter is more fully understood. It has, therefore, no inherent connexion with the dialectic at all, since its introduction is due to our misapprehension, in the lower categories, of the true nature of the movement.

7. Here, however, we come upon a fresh question, and one of very great importance. We have seen that in the dialectic the relation of the various finite ideas to one another in different parts of the process is not the same—the three ideas of Being, Not-Being, and Becoming standing in different relations among themselves to those which connect Life, Cognition, and the Absolute Idea. Now the dialectic process professes to do more than merely to describe the stages by which we mount to the Absolute Idea—it also describes the nature of that idea itself. In addition to the information which we gain about the latter by the definition given of it at the end of the dialectic, we also know that it contains in itself as elements or aspects all the finite stages of thought, through which the dialectic

has passed before reaching its goal. It is not something which the dialectic reaches, and which then exists independently of the manner in which it was attained. It does not kick down the ladder by which we mount to it. It pronounces the various finite categories to be partly false and partly true, and it sums up in itself the truth of all of them. They are thus contained in it as moments. What relation do these moments bear to one another in the Absolute Idea?

We may, in the first place, adopt the easy and simple solution of saying that the relation they bear to one another as moments in the Absolute Idea is just the same as that which they bear to one another as finite categories in the dialectic process. In this case to discover their position in the Absolute Idea it is only necessary to consider the dialectic process, not as one which takes place in time, but as having a merely logical import. The process contemplated in this way will be a perfect and complete analysis of the concrete idea which is its end, containing about it the truth, the whole truth, and nothing but the truth. And this, apparently, would have been Hegel's answer, if the question had been explicitly presented to him, which does not appear to be the case. For he asserts, clearly and undoubtedly, that the dialectic expresses the deepest nature of objective thought.

But this conclusion seems open to doubt. For the change of method results, as we have seen, from a gradually growing perception of the truth which is at the bottom of the whole dialectic,—the unreality of any finite category against its synthesis, since the truth and reality of each category consists only in its reference to the next, and in its passage onwards to it. If this was not true all through the dialectic, there could be no dialectic at all, for the justification of the whole process is that the truth of the thesis and the antithesis is contained in the synthesis, and that in so far as they are anything else but aspects of the synthesis they are false and deceptive. This, then, is and must be the true nature of the process of thought forwards, and must constitute the real meaning and essence of the dialectic. Yet this is only explicitly perceived in the Notion, and at the end of the Notion—or rather, as I said above, is never completely perceived, but is only an ideal to which we approximate as our grasp of the subject increases. Before this the categories appear always as in their own nature permanent and self-centred, and the breaking down of this self-assertion, and the substitution for it of the

perception that truth is only found in the synthesis, appears as opposed to what went before, and as in contradiction to it, although a necessary and inevitable consequence of it. But if this was really so the dialectic process would be impossible. If there really was any independent element in the lower categories, or any externality in the reconciliation, that reconciliation could never be complete and the dialectic could never claim, as it does undoubtedly claim, to sum up *all* the lower elements of truth.

The very existence of the dialectic thus tends to prove that it is not in every sense objectively correct. For it would be impossible for any transition to be made, at any point in the process, unless the terms were really related according to the type belonging to the Notion. But no transition in the dialectic does take place exactly according to that type, and most of them according to types substantially different. We must therefore suppose that the dialectic does not exactly represent the truth, since if the truth was as it represents it to be, the dialectic itself could not exist. There must be in the process, besides that element which actually does express the real notion of the transition, another element which is due to our own subjective mistake about the character of the reality which we are trying to describe.

This agrees with what was said above—that the change of method is no real change, but only a rearrangement of the elements of the transition. It is, in fact, only a bringing out explicitly of what is implicitly involved all along. In the lower categories our data, with their false appearance of independence, obscure and confuse the true meaning of the dialectic. We can see that the dialectic *has* this true meaning, even among these lower categories, by reflecting on what is implied in its existing and succeeding at all. But it is only in the later categories that it becomes explicit. And it must follow that those categories in which it is not yet explicit do not fully represent the true nature of thought, and the essential character of the transition from less perfect to more perfect forms.

The conclusion at which we are thus compelled to arrive must be admitted, I think, to be quite un-Hegelian. Hegel would certainly have admitted that the lower categories, regarded in themselves, gave views of reality only approximating, and, in the case of the lowest, only very slightly approximating, to truth. But the procession of the categories, with its advance through oppositions and reconciliations, he apparently regarded as presenting absolute truth—

as fully expressing the deepest nature of pure thought. From this, if I am right, we are forced, on his own premises, to dissent. For the true process of thought is one in which each category springs out of the one before it, and not by contradicting it, but as the expression of its deepest nature, while it, in its turn, is seen to have its deepest reality in again passing on to the one after it. There is no contradiction, no opposition, and consequently no reconciliation. There is only development, the rendering explicit what was implicit, the growth of the seed to the plant. In the actual course of the dialectic this is never attained. It is an ideal which is never quite realised, and from the nature of the case never can be quite realised. In the dialectic there is always opposition, and therefore always reconciliation. We do not go straight onward, but more or less from side to side. It seems inevitable, therefore, to conclude that the dialectic does not completely and perfectly express the nature of thought. I shall next endeavour to consider the further consequences of this admission.

## V.—THE LAW OF PSYCHOGENESIS.

By Professor C. LLOYD MORGAN.

Is there a law of psychogenesis? Is there a common principle which sweeps through the whole range of mental evolution, alike in the individual and in the race? A principle sufficiently general to cover the whole field of consciousness, and yet not so vague as to be meaningless? I believe that there is such a principle; one which applies alike to the simpler inferences of perceptual experience, and to the more complex judgments in matters intellectual, aesthetic, moral. I shall here endeavour to indicate its nature. But it will be necessary first to clear the ground at some length.

*The Rôle of Consciousness.* Without attempting to enter upon such vexed questions as, What is consciousness? and, What is its relation to man as an organism? I think we may say without much fear of contradiction that the business (or, shall we say, part of the business?) of consciousness is the control of action. If it be not so, if consciousness has no such guiding and controlling power (however exercised), then is it but a by-product; very beautiful and precious, nodoubt, but none the less a by-product, an epi-phenomenon, a mere incident and not a factor in the development of organic life. Then is all organic response and conduct brought down to the level of reflex-action. Consciousness is like a little child on a great ocean steamer coming into port. He sits in the bows, and whispering his orders to the figurehead, thinks he is controlling the movements of the great vessel, while all the time he is a mere passenger witnessing the handling of the steamer and only fancying he has controlling power. Such a view seems to me false, if not ridiculous. Consciousness is no mere passenger in the organic ship, but holds the helm.

There is a tendency among certain nerve-physiologists to regard all organic response as of the nature of reflex-action, the differences being only differences of complexity. I strongly suspect, however, that this procedure ought to be reversed, and that we ought more clearly to distinguish between the involuntary reflex-act, properly so called, and a response under voluntary and conscious control. I will reduce to its simplest expression, and represent diagrammatically what seems to me the essential difference between the

merely organic reflex and the organic and conscious response. The reflex-act is initiated by a stimulus which passes through one or more nerve-centres *a* and *b*, and gives rise to the appropriate response



FIG. I

If consciousness there be in this case it may be regarded as a mere by-product, since it does not influence the resulting action. This is the reflex-act. Now let us introduce consciousness as guiding and controlling

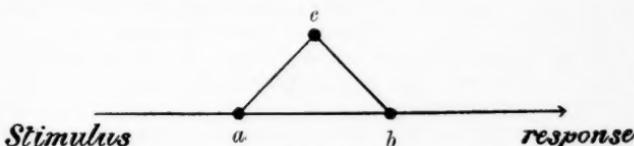


FIG. 2

Here consciousness is developed in the loop-line at *c*, and according to the nature of the controlling consciousness the response which flows out from *b* is either reinforced or inhibited through the channel *c b*.<sup>1</sup> As the consciousness in *c* becomes fuller and more complex by the calling into being of an increasing body of representative states of consciousness, it comes to symbolise in mental terms the occurrences both on the side of stimulus and on the side of response. Thus within the organism which responds in voluntary activity to stimuli there develops an organ *c* which is the material expression of that conscious symbolism under which the activities of the organism are controlled.

When I say then that the rôle of consciousness is the control and guidance of action, I do not mean consciousness as dissociated from the living organisation, but consciousness as associated with, and forming the mental aspect of, certain

<sup>1</sup> This is not the place to attempt a justification of this view. It is sufficient to indicate that in man the cerebral hemispheres of the brain seem, in the main at all events, to constitute the organ of control *c*. The connexion *a c* is formed by such tracts as the "optic radiation," from the "pulvinar" to the cerebral cortex. The connexion *c b* is largely represented by the "pyramidal tract". The "motor centres" mapped out with such success of late years are the centres of conscious and voluntary control (or, in short, control-centres) within the brain, or the channels (funnels) through which such control is brought to bear on lower centres *b* through the pyramidal tract.

transformations of energy in the brain or other organ of control.

*The Mechanism of Control.* Physiologically control is effected by augmentation or inhibition brought to bear through the channel *c b* and resulting from certain molecular transactions in *c*. Psychologically we know these transactions from the aspect of consciousness. From the psychological point of view, therefore, we may say, that the impulse to a given response is checked by the bringing to bear of other and opposing impulses or motives, or is furthered by the co-operation of other and reinforcing impulses or motives. Accompanying the conflict of opposing impulses or motives there is a more or less painful sense of hesitation, dilemma, uncertainty, indecision. And accompanying the ultimate predominance of one impulse or set of impulses there is a sense of relief, of choice, of decision. Often too there is a sense of effort. We say that we broke the spell of indecision by an effort of will.

According to this view of the matter the stronger impulses at length prevail; in other words, the action takes the line of least resistance. But this may seem contrary to experience. As Prof. James has said: "If a brief definition of ideal or moral action were required, none could be given which would better fit the appearances than this: *It is action in the line of greatest resistance*". How comes it to appear to be action in the line of greatest resistance? Because of the sense of effort which is associated with the final decision. Now this sense of effort most markedly accompanies the newest and most difficult activities; it is distinctively associated with the higher control-centres. Whatever be the psychology of effort, its association with the higher control is a fact of common experience. Suppose that we are drawn towards some natural but immoral action by our lower instinctive impulses; but that we resist the action by a resolute act of will, in obedience to the prompting of a moral ideal. It is the latter and not the former, the ideal motive, not the natural propensity, that is a matter of our control centres. *We identify ourselves rather with the action of our control centres than with our lower animal instincts*, and say that we prevail over the instinctive propensity. This association of the idea of self with the higher and most individual control-centres, as compared with the lower instinctive propensities, is the basis of a rational doctrine of free-will. These higher impulses of the individual control-centres we regard as essentially our own, we regard as voluntary; and we associate with them

the motor feelings of effort which accompany the newest, most difficult, most individual activities. A rational doctrine of free-will (which may be held by the most rigid determinist) asserts that the acts we call voluntary are essentially our own, the outcome of the play of our own control-centres; and that, being ours, we are responsible for them.

*Mental Symbolism.* I said that within the organism which responds in voluntary activity to the stimuli of the external world there develops an organ, in us the brain, which is the material expression of that conscious symbolism under which the activities of the organism are controlled. What do I mean by this conscious or mental symbolism?

As I write I see before me a table with paper, inkstand, books: through the window I see trees, houses, living beings: further off, a rising down, and beyond, a fine background of English cloud. I feel the pen in my fingers and the table on which my hand rests. The air is scented with tobacco smoke. All this is part of the mental symbolism. The play of impressions on my sensitive organisation evokes in my brain a series of neural tremors which have for their mental aspect all that which I have briefly indicated. Thus in consciousness is symbolically represented that which lies outside consciousness.

Here it may be asked whether the symbolic representation can be said to resemble the outside existences which call it into being. I suggest the question merely to disregard it. For the answer is wholly immaterial to my present purpose. Each individual may answer it for himself in accordance with his philosophy or his common-sense. All that I wish to insist upon is that the external occurrences *must be translated into consciousness* ere they can become part of the symbolic series.

It is through perception that I become acquainted with the table, inkstand, books, and so forth; and the objects as presented to consciousness are percepts. We often hear it said that, in the course of evolution, the percepts of living animals and of men have been moulded to the objects of the world in which we live, and this is sometimes more tersely expressed in the dictum that thoughts have been moulded in accordance with things. But both expressions are apt to be misleading. Percept does not answer to object in the sense that the symbol answers to the thing symbolised. For percept and object are alike parts of the mental symbolism. The percept is one aspect of the several possible aspects which the external occasion of perception presents in mental symbolism; while the term "object" is applied to the sum

of the perceptual aspects. Even when there is tacit reference to the external occasion, when we say, for example, that the same object may give rise to different percepts, or may be perceived in different ways, we use the word "object" in shorthand for the phrase "external occasion symbolised as object". Even if the object, as part of the mental symbolism, resembles point for point the occasion of perception, or what calls forth the mental symbolism (and whether this is so or not, is, as I need not remind those who read this journal, a very old bone of philosophical contention), it matters not. It is with the object as part of the mental symbolism that we are dealing in all cases of human perception and observation.

This point is vital to my argument. Suppose that on the surface of a mirror there is faithfully reflected a landscape. In that reflexion we may trace the relations in which the images stand to one another. We may also compare the images with the things imaged. But the relationship of the images, *inter se*, is one thing. The fact that the images resemble external trees, houses, and so forth is another thing. And he who should confuse the two would be committing a serious blunder. Now the reflexion in the mirror is the mental symbolism. The several images are the objects in consciousness, *for consciousness is the mirror*. All we can do is to compare the images, and trace out their relationships to each other. We can never turn round to see whether the images in the mirror resemble the outside occasion of their existence, for this would be to turn our backs on the mirror, consciousness, in which alone we can see anything. Even if, therefore, we are convinced on other grounds that the images in the mirror answer point for point in closest resemblance to their external occasions, it still remains true that, so far as consciousness is concerned, we are restricted to the mental symbolism.

This mirror-analogy is a rough one, and must not, of course, be taken for more than it is worth. It may serve to illustrate and emphasise the fact that our directest percepts, not less than our most refined and subtlest concepts, form part of the symbolic series. Every visible proof and tangible evidence of the practical reality of the things around us is given in terms of perception, in terms, that is to say, of what I have termed mental symbolism. When we wish to verify the existence of any object or the properties of any object, we do so by submitting it to the touchstone of perception.

I have laid special stress upon the symbolic nature of perceptual experience, because it is sometimes supposed that in

psychogenesis we have to try and explain two things : first, the relations of percepts to each other and to concepts ; and, secondly, the relations of percepts to objects perceived or external occasions of perception. If what has been urged above is valid, these two things are so radically distinct and different that we should not comprise them under one head, at least without a very clearly distinguishing adjective. We may call psychogenesis within the sphere of mental symbolism "positive psychogenesis," and reserve the term "metaphysical psychogenesis" for the further and totally distinct question of the relationship between the symbolic series as a whole and its external occasion. It is with positive psychogenesis that I deal.

It only remains under this head to indicate that, in addition to the percepts and the intelligent inferences on the perceptual plane which characterise the mental symbolism of man *quid* organism, there are concepts and rational inferences in the conceptual sphere which conspicuously characterise the mental symbolism of man *quid* social and rational. Man not only perceives and adjusts his actions to surrounding phenomena in common with his four-footed companions, he also analyses these phenomena through the application of his conceptual thought with the aid of language. He frames theories of things and interpretations of nature ; he studies the workings of his own mind and endeavours to explain them ; he contemplates the beauty and charm of natural objects and of his own artistic productions, and tries to formulate the principles of æsthetics ; he ponders over his relations to his fellow-men, and does his best to understand the conditions of his social existence ; he forms an ideal of what he himself should be and of what he desires humanity to become, and endeavours to mould his life and the lives of his fellow-men in conformity with these ideals ; he feels the ultimate mystery of the world and of his own being, and frames conceptions of the underlying Cause in conformity with his religious tenets. In all this, or at anyrate in most of it, man differs from all other organisms. And all this, or at all events the greater part of it, man possesses in virtue of his social state, a state in which many individuals are animated with a common aim, and in which these individuals are bound together by strands of linguistic intercommunication.

*Psychogenesis and Experience.* We give in general the name of experience to the process by which the individual powers of the mind are unfolded. To learn by experience is essentially a process of trial and error. The child in response

to certain external stimuli, or perhaps automatically, puts forth its varying activities. Through the guidance of experience some of these actions are enforced, some checked. This, be it noted, is a matter of control. Experience does not originate the activities; it guides them into suitable channels, selecting those which give satisfaction in consciousness and rejecting those which in consciousness are unpleasant and distasteful.

That the burnt child dreads fire is a proverbial example of the teaching of experience. When first the child sees something bright, shining, alluring to the touch (why it should be alluring to the touch does not concern us here) he stretches forth his hand to grasp. The pain he then experiences becomes thereupon associated with the performance of such action under such circumstances. Subsequently he again sees the bright, alluring object; again there is the tendency to stretch forth the hand and touch; but the representation of the associated pain now modifies the former result. If the memory of the pain be vivid the action may be arrested; if weak it will only be partially checked; pain will again be experienced, and will become for the future more firmly associated with the performance of such action under such circumstances.

Such are the rude teachings of experience in the lower planes of mental symbolism. More subtle is the guidance in the higher plane of intellectual, moral and aesthetic control. But it is the same in principle. Conduct in these regions, however, is more idealised; less under the sway of somewhat rough perceptual inferences; more under the control of reason and conceptual thought. The experience is here more distinctly and obviously subjective. The modest woman is not pure in act through bitter experience of the results of an immoral life. She is pure in conformity with an ideal which is part of her moral nature. Just as the child avoids the fire because it hurts, so does the pure woman shrink from the thought of an immoral act because it hurts. Just as it is part of the child's perceptual nature that he should suffer from contact with certain objects, so is it part of such a woman's moral nature that she should be scorched and burnt by impure thoughts. Experience is self-knowledge. Without experience there could be no conscious selection of those activities which give satisfaction in consciousness, no rejection of those which in consciousness are unpleasant and distasteful. And psychogenesis in the individual involves such a selection among the states of consciousness which constitute the mental symbolism.

*Innate Tendencies.* But though experience is thus a factor in the development of individual conduct; the performance of certain acts giving pleasure while that of others brings pain, the suggestion of immodest thoughts being found in experience to be repugnant to the moral nature, the acquisition of a new truth being found in experience to give a thrill of satisfaction to the intellectual nature—though, I say, experience is thus a factor in, or, if it be preferred, a condition of, the development of individual character and conduct, many of the activities of organisms, and of man among the number, are directed to more or less definite ends in the absence of and previous to individual experience. The typical instances of these are instinctive activities. An instinctive action is one which is performed prior to and independently of experience, though such action may, of course, be subsequently modified through experience and, in so far as thus modified, cease to be instinctive. Instinctive actions, as such, are not subject to control: control, that is to say, renders them, so far, other than instinctive. In the conduct of men the lower impulses are largely of this order. In many cases we are mere spectators, sometimes astonished spectators, of our own actions. Impulse carries us away, and we can only watch and wonder whither we are driven by organic tendencies. The determinate nature of our actions is by no means entirely a matter of individual experience and guidance, but is largely the outcome of innate tendencies. What occurs under experience is a selection from among the existing innate tendencies of special modes of response which are in conformity with the individual nature. These special modes of response, thus selected, then set and become habitual. A habit is a response well-organised through the guidance of individual experience. As the organisation increases the guidance diminishes and the necessity for conscious control ceases. Thus habits ingrained by individual repetition may come to simulate instincts not acquired by the individual but innate.

We next proceed to ask: Whence come the innate tendencies? How comes it that in the individual there already exist a body of determinate or indeterminate impulses from among which, through experience, selection is made?—In doing so we pass from development in the individual to development in the race.

*Psychogenesis and Use-inheritance.* We have seen that under the selective influence of individual experience certain activities are developed and organised and pass into habits. We inherit the germs, or, one may say, the more or less de-

veloped embryos of faculty, and these may be developed to a greater or less degree through experience. Thus the muscular power of the athlete is increased through training and use; and in the mathematician the faculty of dealing with numerical relations and the symbols by which they are expressed. Take any two individuals with similar musical faculty: the one cultivates the faculty; the other lets it lie dormant. In the one the faculty is perfected within its limits; in the other it remains comparatively undeveloped. These are familiar facts; and we may express their teaching by saying that, in the individual, use develops faculty.

When therefore we come to ask how innate faculties and determinate tendencies to activity have been developed in the race the simplest and most tempting answer is: By inherited experience. An instinct is thus an inherited habit. According to this view the increased muscular power of the athlete, the enhanced mathematical faculty of the man of science, the developed musical ability of the pianist, are to some extent handed on as a legacy to their children. Modified and perhaps enriched by the individual experience of the legatees, the legacy is again handed on to succeeding generations; and thus, through the steady addition of increments individually acquired and transmitted to offspring, there is a progressive development of faculty in the race, and each individual comes into the world with a greater potentiality for individual development.

This is undoubtedly a very pretty and pleasing scheme. But of late the actual occurrence, and even the possibility of any such inheritance of acquired increment of faculty, has been seriously questioned, and by many able biologists stoutly denied. No matter by how much the athlete increases his biceps, no matter how fully the mathematician develops his splendid faculty, the children subsequently born to them are, it is maintained, none the better for their pains. Faculty in general is in the same position as particular applications of it: the boy does not know his fifth proposition of Euclid because his father knew it before him; nor does he learn it any the easier for his father's long devotion to mathematics. Had his father devoted his life to billiards instead, his son would have learnt that proposition none the less easily.

Which of these strongly opposed views is correct; whether "use-inheritance," as it has been conveniently termed, is fact or fancy, I will not here attempt to decide. It is a matter that is still *sub judice*; one that is very hard to settle by experimental evidence or direct observation, and one on

which we must not dogmatise one way or the other. It will have to be decided mainly on biological grounds, and we must be content to await conclusive biological evidence for or against it.

In any case so far as organic evolution is concerned, and psychogenesis is from our point of view closely associated with organic evolution, this use-inheritance is, if established, admittedly only one factor. Another factor, regarded as dominant by most biologists, is natural selection.

*Psychogenesis and Natural Selection.* I need not describe the mode of action of natural selection. It is based upon the law of increase, the law of variation, and the struggle for existence: the law of increase, that many more individuals are born than survive to procreate their kind; the law of variation, that these individuals are not all alike; and the struggle for existence, by which those who fall below mediocrity are eliminated, while those who excel, interbreeding with average individuals, tend to raise the standard of mediocrity in the succeeding generation. A wolf-spider and his wife are cunning in their artful stalking of unwary flies. They have a numerous family. Some are inferior in cunning to their parents, some equal them, a few excel them. But flies are scarce, and there is not enough food for all. Only two can get a living, but these two are just the most cunning of the whole brood. Of the numerous family produced by these selected individuals, only two again survive to continue the race, and they the very cleverest of the lot. They have not inherited any cunning *individually acquired* by their parents, but they are the terminal products of a series of fortunate variations in the direction of cleverness.

It is clear that there is no inherited experience here. The relation of this process of natural selection to experience seems indeed to be this. Learning by experience in the individual is a process of trial and error, erroneous response being checked. Learning by experience in the race is also a process of trial and error, individuals who failed to accommodate themselves to their surroundings, as the result of their individual experience, being eliminated. In the one case erroneous responses, in the other erroneous respondents, are eliminated. There is no inheritance of experience, on the view above indicated, but those individuals who best profit by experience are selected and transmit their ability so to do.

Now what is the relation of natural selection to psychogenesis or the development of mental symbolism? If we say that it has been a factor and a most important factor in

its development, we must be clearly understood to mean by development, guidance along certain lines, not origin or initiation. Though the struggle for existence may have caused the elimination of those individuals in which the mental symbolism was relatively imperfect or deficient, natural selection does not give us the law of its internal development.

What is the function, if one may so say, of the mental symbolism in the animal world? To enable the organism so to guide its actions as to resist elimination, to live out its full span of life, and to procreate its kind. Those organisms in which this function is performed in the most efficient manner have survived through the operation of natural selection. Be it so. But the power of efficient control must have been *there*, given in the organism, ere it could be selected. Every advancing step in the development of mental symbolism and of the control it rendered possible must have been *presented to* natural selection, was not in any sense *evoked by* natural selection.

This, it may however be said, is nothing special and peculiar to the mental symbolism: it is true of every organ and of every function which has reached excellence or relative excellence through survival. The fittest survive through natural selection: but what is the mode of origin of the fit? Favourable variations are selected: but how about the origin of the variations? These are questions which are daily asked and can hardly be said to have received satisfactory answers.

All this I grant, nay more than grant, I am prepared to urge. But that is perhaps all the greater reason why we should endeavour to find the law of psychogenesis—the principle which guides and has guided the development of mental symbolism apart from the physical elimination of natural selection.

*Natural Selection and Social Evolution.* Granting that natural selection is a dominant factor in organic evolution, is it also the dominant factor in social evolution? I believe that in modern phases of social evolution natural selection holds a quite subordinate place.

So much is said and written about the social struggle for existence; so largely does competition enter into all phases of social procedure; so conspicuously does the principle of selection, and election, meet us at every turn; that it may seem somewhat absurd to contend that natural selection holds quite a subordinate place in social evolution. If not natural selection, it may be said, at anyrate a strictly analogous process is not subordinate but dominant.

Is the process strictly analogous? I think not. What is the method by which progress is secured by natural selection? The elimination of failures, that is to say of all those individuals who fall below mediocrity, or their exclusion from all participation in the continuance of the race. Is this true of social evolution regarded as a whole? Are the failures eliminated? Are they excluded from all participation in the continuance of the race? Do not the social problems of the day largely arise out of the fact that the social failures are *not* eliminated but are here in our midst, and that they multiply exceedingly? Are not the checks to increase of population mainly prudential? And are not the prudent—those who look before they leap into marriage—for the most part those who are *not* social failures? It is just because natural selection, or the elimination of the unfit, is not and cannot be the law of development in a civilised social community, that we are surrounded on all sides with the most difficult social problems.

Or look at the matter from a slightly different standpoint. No account of social evolution would be complete which did not comprise a consideration of progress in Art, Science, Literature, Morality. Now I do not believe that anything analogous to natural selection, any process of eliminating the unfit, has been the dominant factor in the evolution of any of these higher phases of social endeavour. An important factor it has certainly been in preserving some of the *products* of these higher phases of human thought. The works of Shakespeare and Milton, of Hooker and Bacon, of Newton and Darwin, of Locke, Hume and Berkeley remain, while a host of inferior writings have been eliminated. But I question whether the genius of Shakespeare or Milton, the scientific insight of Newton or Darwin, or the philosophic penetration of Hume or Berkeley were the outcome of any process which can with any approach to accuracy be regarded as analogous to the elimination of the unfit by natural selection. I fail to see how the *Elijah* of Mendelssohn or the *Assumption* of Titian could be the result of any process of physical elimination.

This word "physical" perhaps best touches the quick of this question. Natural selection through elimination is essentially a physical or organic process; and my contention is that in social evolution we are mainly concerned with a psychical or mental process. Not the law of organic development but the law of mental development, of psychogenesis, is dominant here.

*Psychogenesis and Sexual Selection.* Natural selection

proceeds on the supposition that those who escape elimination in the struggle for existence mate together indiscriminately. This is not the case in human civilised society. Whatever may be true of the lower animals, among mankind selective mating is a fact of the very utmost importance. And its special importance, in regard to our present theme, lies in this: that, at its best and highest, it is essentially a psychical and not merely an organic process. It is a process by which man is consciously or unconsciously giving physical or organic expression through heredity to his highest ideals. For in marriage at its best and highest the man selects his ideal woman, her in whom beauty and grace, physical, moral and intellectual, are embodied; and the woman selects her ideal man, conspicuous among men for beauty and strength of mind and body. Herein lies the value, from the evolution point of view, of our marriage system. The more enduring the marriage bond the more careful will the contracting parties be to select wisely and well, looking not merely to immediate gratification but to life-long association. And if there be any truth in heredity this must have an important effect on the race; not indeed on the community as a whole, except in so far as there is elimination, but on its highest representatives physically, morally and intellectually.

Sexual selection then differs from natural selection in this: that whereas natural selection is a process by which is effected the physical elimination, by death or failure to procreate their kind, of those who fall below mediocrity; selective mating is the giving expression to certain preferences or ideals. By natural selection all are plucked in life's examination who do not reach a certain standard of excellence: by selective mating particular individuals are picked out by an act of selective choice. Natural selection has guided the mental symbolism to certain developments by eliminating those in whom these developments were absent: selective mating is a product of the mental symbolism so developed. It is itself the outcome of psychogenesis. And however important it may be as a factor in social development it is rather the result of than the cause of the higher phases of mental evolution.

*The Law of Truth.* In seeking an answer to the question: What is the law of psychogenesis? it will be well to start from the higher and more abstract region of concepts and work our way downwards to the more practical level of percepts; and then, having found certain subsidiary laws or principles, to see if there does not run through these a single basal law or principle.

What is the guiding principle of development in intellectual matters? I would call it the *law of truth*. In the course of my reading and of my converse with my fellow-men I find the facts of nature and of human conduct and experience interpreted in a number of different ways. Some of these interpretations I unhesitatingly accept as true; others with as little hesitation I reject as false; many I ignore or relegate to a suspense account. On what grounds do I at once accept certain interpretations and reject certain others? It is often difficult to give, off-hand, the specific grounds of acceptance or rejection. But it practically comes to this. I accept what is in accordance with my own views and theories: I reject what is contrary to my own scheme. I relegate to a suspense account, or ignore, what neither accords fully with my system of interpretation of nature, of life and of man, nor actually conflicts with that interpretation. I neither accept nor reject what seems to be irrelevant.

A bare-faced confession of prejudice! But observe that I am for simplicity's sake supposing that my interpretation is constant. I most sincerely hope, however, that it is capable of development, and that such prejudice as there is is the healthy prejudice that comes of long and honest study. Suppose then that I am led to accept a view which is not in strict accordance with the views I held yesterday. Does not this imply that my opinions have altered so as to embrace the new view? And is it not still true that I accept what is in accordance with my own theory—not my theory of yesterday, but my modified theory of to-day? The very fact that the new view could not be accepted without modification of my theory of things, emphasises the point which I desire to bring out, that what is accepted must be in accord with the system into which it is incorporated. In every mind, as intellectual, this process is going on. The true is accepted, the false rejected; the rest more or less ignored. No man consciously accepts the false, or rejects the true.

What, it will be said, no one rejects the true, no one accepts the false! This, at anyrate, is an interpretation of the facts which we may unhesitatingly reject as false. But before you reject, my friend, be sure that you understand. I do not say that no one rejects what *you* regard as true, or accepts what *you* regard as false. That would, indeed, be absurd. I say that no one accepts what *he* regards as false, or rejects what he regards as true—a very different matter. To say that any one believes what he deems untrue is a contradiction in terms. What, then, in the individual mind, is the criterion

of truth and falsity? I reply, congruity or incongruity to the existing intellectual system as developed in that mind. An explanation of a given occurrence which is in congruity to my system of interpretation of nature I accept. If the explanation is incongruous, I reject it. If a lady pricks her finger with a darning needle, and attributes it to having spilled salt at luncheon and omitted to throw some over her left shoulder, this explanation is for her, no doubt, the true one. For me it is false, because it is not in congruity to my mode of interpreting such occurrences. In different minds widely different systems of interpretation grow up. The man of science, as such, the poet, as such, the mystic, as such, view the world with different eyes. Each has his special theory of things. But each, as an intellectual system, is self-congruous. Each has developed by the selection of the congruous and the rejection of the incongruous.

*The Law of Beauty.* In aesthetic matters, what may be termed the *law of beauty* is the guiding principle. That only can be accepted as beautiful which is in congruity to the aesthetic nature. The aesthetic nature may change; what was once regarded as beautiful may in after years make one shudder; in what was once regarded as indifferent we may learn to see a gem of art; but at any moment in the process of development, only that could be accepted as beautiful which was in harmony with the individual taste at the time. It is generally admitted that there is no arguing about matters of taste. Things are for me beautiful or ugly, pleasing or displeasing, tasteful or the reverse, according as they are congruous or incongruous to my nature as aesthetic. You cannot make a thing beautiful to me as it is beautiful to you without altering my whole aesthetic nature. You cannot persuade a man to prefer the third *Léonora* overture to *The Bogie Man*. We agree that there is no arguing about taste. Why? Because you are not likely by argument to modify the aesthetic nature. It is nearly, but not quite, as true that there is no arguing about intellectual matters—as between, for example, a positivist and a Hegelian. You cannot persuade a poet on the one hand, or a metaphysician on the other, to accept a scientific interpretation of nature, because he cannot do so without changing his whole intellectual nature. Both the true and the beautiful are questions of congruity to the mental nature.

*The Law of Right.* In matters of ethics the *law of right* is the guiding principle. This is accepted as right, that is rejected as wrong, according as each is congruous or incon-

gruous to our moral nature. The sense of congruity or incongruity is what we term the voice of conscience.

As in intellectual matters, and as in questions of æsthetic taste, so too in ethical problems it is often exceedingly difficult to give a specific answer to the question : Why is this or that right or wrong ? The woman's answer, Because it is, and there's an end on't, is really not far astray. A thing is right for me because it is in accordance with my moral nature, because it is what it is, and I am what I am, and it and I vibrate in unison. The thought pulsates true with my thought. The act is in harmony with my ideals.

It is untrue to fact to say that there is only one possible self-congruous ethical system. As there are different interpretations of nature, as there are different standards of taste, so there are different ethical ideas. We cannot frame a universal scale of right and wrong. Dr. Martineau gives a hierarchy or ascending scale of passions, appetites, affections, and sentiments, and says : " Every action is *right* which, in presence of a lower principle, follows a higher ; every action is wrong which, in presence of a higher principle, follows a lower ". The hierarchy expresses his own ideal scale, but, as a matter of fact, it is individual and not universal. We cannot frame a universal scale. If we say that our own scale ought to be universal, we are only expressing our own ideal. I am not, of course, saying that there is not an interpretation of nature truer than all others, an ethical system nearer than all others to the perfect right. I only say that we know not at present which interpretation of nature, which ethical system is the truest and most right ; and that there are in existence several rival interpretations of nature and many rival ethical systems, which are perfectly self-congruous in the eyes of those who hold them.

In opposition to the principle of congruity some one may lay stress on the constant discrepancy between theory and practice in matters of right and wrong. " The pity of it is," he may say, " that incongruous as it may be to his moral nature man is constantly doing that which he knows to be wrong. It may be true that no one can believe what is, from his point of view, untrue, or admire what is, in his eyes, ugly ; but he constantly does what he feels to be wrong." This is perfectly true. And it is due to the fact that moral considerations are not, as man is at present constituted, the only, nor always, by any means, the more powerful, incentives to action. The brute performs a number of actions which are conformable to his nature as sensual ; and man is still largely a brute. If a man is sensual rather than

moral his actions will be in conformity with his sensuality rather than his morality. And this is in complete accord with the principle I am advocating, that what is congruous to the mental nature of the individual is selected, and what is incongruous thereto is rejected.

Moreover, under different external circumstances and different internal states of the bodily organisation, our natures fluctuate to and fro within limits which vary in different individuals. In moments of excitement we are different beings from ourselves in moments of calm contemplation. And we therefore react differently. There are periods when the organisation of the drunkard or the sensualist cries aloud for the satisfaction of the craving by the performance of acts in conformity with the state of heightened sensuality. If the sensual desires be satisfied this element of the nature retires into the background, and moral considerations gaining predominance, the individual, reviewing his conduct, is covered with shame and remorse. The acts in congruity with the heightened sensual state excite loathing and disgust in the succeeding state of increased moral sensibility.

*Conduct and Verification.* Apart from such cases as those just alluded to, in which there is conflict between moral ideals and the lower impulses of our nature, there are many cases in the practical conduct of life when consistently to act out our highest moral ideal is impracticable. We may feel that war is repugnant to our moral nature, but at the same time urge the efficient maintenance of our army and navy and their vigorous employment in cases of national necessity. The guiding principle in these cases is practical expediency, or the congruity of actual conduct to the existing social or other conditions. The practical reformer is he whose social ideals are not merely utopian and subversive of the existing order of things, but exhibit a graduated series of practically possible steps from the existing system to an order of things ideally better. The ideal system<sup>1</sup> must not only be congruous within itself, but must be in touch with the actualities of life and conduct.

Similarly of intellectual systems or interpretations of nature. Not only must they be congruous in themselves and on the conceptual plane of intellectual ideas, they must

<sup>1</sup> I am here speaking of the practical carrying into effect of social reform. There is a great difference between the ultimate ideal which we only hope may some day be reached, and the practical ideal which we may see realised to-morrow.

be, and are in all cases held to be, congruous to perceptual experience. The ultimate appeal in all cases is to perceptual experience. To this plane must conceptual conclusions be brought down that they may undergo the test of verification. Not only must ideas and theories be congruous to other ideas and theories, but they must be in congruity to percepts. From percepts have concepts arisen by analysis and abstract thought and reason; to percepts must the results of analysis and abstract thought conform to satisfy the final test of congruity.

Here again the principle I am advancing may seem to be incongruous to actual facts. The concepts of primitive folk, of savages, of the uneducated, of faddists, have certain practical perceptual implications which we see clearly enough, and which when submitted to the perceptual touchstone, are shown to be false or incongruous. But in these cases the individual concerned either fails to apply his concepts to the perceptual touchstone, or fails to see the conflict between theory and practical experience which is to us so obvious, or introduces new concepts which make the test for him of none effect.

The last is a very common case, which I may roughly illustrate. The individual concerned is, we will suppose, a spiritualist. At a dark séance, while the medium lies entranced, tambourines are heard, played, it is said, by spirit agency. It so happens that a scientific wag has blackened the tambourines. And when the séance is over and the lights turned up, it is found that the medium is all besmudged with lamp-black. The scientific wag regards this as proof presumptive that the medium played the tambourines. Does this perceptual evidence convince the spiritualist? Not so. A spiritualistic concept is introduced and the whole affair made congruous to spiritualistic views. For is it not a well-known law, that anything which happens to the spirits during a séance is transferred to the medium through whose agency they were manifested? By the introduction of new assumptions it is very easy to make perceptual experience fit in with any theory which an individual may chance to hold.

There are, moreover, certain highly abstract concepts and theories which are very hard to bring down to the touchstone of perceptual experience. Such are the concepts of metaphysics. And there are certain minds which normally live and move in an atmosphere of conceptual thought. They are often impatient of verification, and have little faculty of testing the congruity of concepts to percepts. I met a

man of ability some time ago, who had been lecturing to working-men on physiology. He had scarcely ever seen a dissection, made an experiment, or examined a microscopic preparation. He found that doing so only confused his ideas! His mind was speculative and metaphysical; and he was troubled with utopian schemes of social reform. Very different is the scientific mind which is restless in its endeavour to apply the criterion of perceptual verification.

This constant demand on the part of science for practical perceptual verification is justified by the essential unity of consciousness, the solidarity of the mental symbolism, and the continuity of its development. According to the scientific interpretation of life and mind (which we must remember is only one out of several congruous systems) not only must the conceptual inferences be conformable to each other but they must stand the test of verification in the perceptual plane. The congruity must sweep through the whole range of mental symbolism from the lowest percept to the highest concept. Any incongruity between concept and percept is in the eye of the scientific mind fatal to the former; in the eye of the metaphysical mind not infrequently fatal to the latter.

Thus we come down to the practical perceptual plane. What is the guiding principle of development here? Many will answer the congruity between percept and object, using the word object for the external occasion of perception as it exists independently of the percipient. If so, we are here going outside the mental symbolism. But I have endeavoured to show that this way of putting the matter is unsatisfactory and misleading. Not the congruity between percept and object (so-called) but the congruity between percept and percept is the law of the mental symbolism in this plane. The percept evoked by the sight of my favourite pipe suggests certain perceptual inferences which I intend ere long to submit to practical perceptual verification.

In this perceptual sphere, as indeed throughout the whole range of mental development, the guidance of pleasure and pain is of great importance—so great that some are found to argue that in moral matters we are influenced solely by considerations of happiness. Our nature is not only intellectual, æsthetic, moral; it is also sensitive. And as the false is rejected as incongruous to our nature as intellectual; as the ugly is avoided as incongruous to our nature as æsthetic; as the wrong is shunned as incongruous to our nature as moral; so is the painful, so far as possible, avoided as incongruous to our nature as sensitive. Only by

extending the meaning of the words pleasure and pain so as to be coextensive with what I have here termed congruous and incongruous can it be said that all our actions and our thoughts are determined by pleasure and pain.

*The Law of Psychogenesis.* Enough has now been said to indicate what I regard as the law of psychogenesis. As in the case of natural selection, properly understood, it is a law of elimination—the elimination of the incongruous. It applies not only to the relations of concepts *inter se*, but to the relations of concepts to percepts, and of percepts to other percepts. It sweeps through the whole gamut of mental development. It is a law of the assimilation or incorporation of like with like. Progress is effected by the elimination of the incongruous.

Assimilation presupposes an environment of that which is capable of assimilation. And the environment in which mind develops is a mental environment. That is a fact too often lost sight of. Consciousness never comes in contact with aught but other facts of consciousness. The mental symbolism is one and continuous and self-contained. There is no getting outside it. If mind does grow up in correspondence with something that is not mind this is a matter of metaphysical psychogenesis, not of positive psychogenesis with which alone I am now concerned. From the positive point of view mind develops in conformity with a mental environment and with that alone—an environment of percepts directly suggested from without and of concepts growing out of perceptual experience or suggested through inter-communication with our fellow-men. And the environment is not unchanging, but is itself subject to development. Each thinker not only has his thoughts moulded by the intellectual environment but reacts upon it, making it for the future something different from what it was. The thinker in any department of knowledge brings his mind into contact with all that is best in human thought and endeavour in that department. He thus finds his true environment and endeavours to make it more congruous by further elimination of incongruities. That I feel sure is how science has advanced. First the congruous system is allowed to take form in the individual thinker's mind by the assimilation of all that is best in the work of his precursors ; by the rigorous application of scientific method and verification some of the remaining incongruities are eliminated ; and then through the thinker's influence the amended and extended system is impressed on the science and philosophy of his time and of all after time. The environment is henceforward no longer

the same. This I could amply illustrate; but not here and now.

The environment is henceforward no longer the same. This constant change—for the better as we hope—of the environment of the developing mind makes it exceedingly difficult, if not impossible, to test the truth of the theory of use-inheritance, already adverted to, in the matter of the mental faculties of man. Take the case of two men with equal mathematical faculty, of whom the one develops the faculty while the other devotes his life to billiards. Putting aside the fact that this development of the faculty in the one case and not in the other is very probably itself the outcome of an innate tendency—putting aside this I say, the son of the former grows up under the influence of a mathematical atmosphere, the son of the latter amid the clatter of billiard balls. If then the son of the former develop into a better mathematician than the son of the latter, who shall say that it is the inherited increment of faculty and not the influence of a mathematical environment that has produced this effect? And, in general, if the mean level of intellectual and moral attainment to-day is higher than it was a generation or two ago, how can we tell that this is not the result of development in harmony with a higher intellectual and moral atmosphere rather than the effect of the inherited increments of faculty? Who shall say that this is not how the acquired increment tells on the race, and not through direct heredity? I am not saying that it is so. But I say that all the facts must be taken into consideration.

It will of course be observed that in contending that the law of psychogenesis is a law of development by the elimination of the incongruous, I am not pretending to account for the origin of the congruous. Just as natural selection accounts for organic development by the elimination of the unfit, but makes no pretence, or should make none, to account for the origin of the fit (which is a distinct problem), so do I suggest that mental development results from the constant elimination of the incongruous; but I make no pretence that it accounts for the origin of the congruous. It is a theory of survival, not of origin.

I had intended here to say somewhat further concerning the relation of physical elimination under natural selection to the psychical elimination of the incongruous. During the early phases of organic evolution the two went hand in hand. In the evolution of man they widely diverge. Physical elimination, as I have contended, becomes a less important factor: the elimination of the incongruous (espe-

cially that which is incongruous to the social ideal) becomes more and more the law of progress. I have not space to trace the matter further; but I have elsewhere<sup>1</sup> said something on this head.

Lastly, I must say a word, but not all that I had intended, on the relation of the law of psychogenesis to the Freedom of the Will. The process, as I conceive it, is one of the elimination of the incongruous, a process analogous, though in a wholly different plane, to that of natural selection. Mental development is the result of a continuous process of selection by the control centres. But I have contended that we constantly identify ourselves with the special action of these control centres. We claim such action as especially and distinctively our own, as the product of our own volition, of our free-will. Hence we may say that psychogenesis through selection is the outcome of free-will, *as thus regarded*; a conclusion which ought to, but is not the least likely to, satisfy both determinists and indeterminists.

Be this as it may, we can perhaps all agree that it should be our practical endeavour to raise the intellectual and moral tone of the community by effecting the elimination of such incongruities to the social nature as falsity, misery, squalor, destitution, vice and immorality; and the assimilation into the social conscience of ideals of truth, justice, happiness, beauty and purity.

<sup>1</sup> *Animal Life and Intelligence*, pp. 483, 484.

## VI.—DISCUSSIONS.

### THE FEELING-TONE OF DESIRE AND AVERSION.

By Professor H. SIDGWICK.

In an article on "The Physical Basis of Pleasure and Pain" which appeared in the last number of *MIND*, Mr. H. R. Marshall has expressed, briefly but decidedly, a view of the quality or "feeling-tone" of Desire, Aversion and Suspense. This view differs very markedly from that to which I have myself been led by a comparison of my own experience with what I have been able to ascertain of the experience of others. Mr. Marshall has taken note of the difference, and subjoined to his brief statement of his own view a polemical reference to mine, written with a rhetorical emphasis which indicates a strong conviction that his view is in harmony with the general experience of mankind. It is possible that this conviction may turn out to be well-founded: but I think that at anyrate some further discussion of the point at issue may perhaps reduce the amount of disagreement between us. I propose accordingly in the present paper to explain the grounds on which my opposite view was founded, with more fulness than I thought appropriate in the treatise to which Mr. Marshall has referred.

As I shall have occasion to direct close attention to one or two of Mr. Marshall's phrases, I will begin by quoting in full the passages in his article that are important for my present purpose.

"The important mental state which we call Desire . . . clearly involves a very important thwarting of the impulse to go out towards an object more or less vividly presented. Under such conditions we should find Desire painful, and there can be no doubt that it is invariably so. It is a complex state, however, which involves other elements than those which bring about the thwarting pain, and these other elements which involve pleasure often mask the pain. . . . Aversion is a state kindred to Desire. It involves thwarted impulses relative to our separation from an object, and should bring pain of a broad kind. This pain is always found as part of an aversion, although at times difficult to isolate from other ever-present painful elements; *e.g.*, the painful representation of an object which will be painful if realised."

Now if I had had to interpret this passage in its context, apart from the polemical reference to myself in a note, I should not have felt strongly moved to disagree with it; because—as I shall presently explain—I should have thought that Mr. Marshall was knowingly using the terms Desire and Aversion in a narrower sense than that in which they are ordinarily used. But this

interpretation seems to be excluded by the following polemical note :—

"Prof. Sidgwick in his *Methods of Ethics* (4th ed., pp. 182 ff.) says that he recognises 'cravings which may be powerful as impulses to action without being painful in any appreciable degree'. He actually speaks (p. 185) of 'the neutral excitements of Desire, Aversion, Suspense, Surprise'. Concerning surprise I have a word below. Here I must be allowed to say that *I* cannot see how a 'craving' can be held to be powerful as an impulse to action without being appreciably painful. As I analyse such states of mind, the so-called neutral excitement which makes the fulness of such states is in mental regions apart from the 'craving'. With certain of our most powerful cravings, for instance, there are the general conditions of high activity which joy implies—there are certain emotional elements of unrestricted love—and these and kindred states we must carefully eliminate in the consideration of the craving proper. The man who hungers gets an impulse to activities from his painful craving, which activities may so far absorb attention as to cover the craving itself entirely. To understand how Desire, Aversion, and Suspense can appear as neutral excitements to any man, requires the postulation of a degree of 'philosophic calm' which has lost Desire in that 'apathy' towards which the Greeks aimed, which has displaced all fear by an almost fatalistic trust, and which has learned to feel that, whatever the outcome of doubtful conditions, that outcome must be good."

It is evident from this passage that, in Mr. Marshall's view, the kinds of feeling which common usage denotes by the words Desire and Aversion are in no cases "neutral excitements" but always painful. It is, then, against this sweeping statement that I propose now to argue.

Before giving my arguments, I should like to limit the field of controversy on two sides. In the first place, I am not at present concerned to maintain that there are, strictly speaking, any "neutral excitements". I am aware that many hold with Mr. Sully<sup>1</sup> that all feeling is pleasurable or painful in some degree: and although my own experience leads me to an opposite conclusion, I do not wish to complicate the present discussion with any controversy on this point. I do not here deny the proposition that Desire and Aversion, if not at least faintly painful, must be at least faintly pleasurable: what I am concerned to maintain is that these feelings are often either neutral or pleasurable, and certainly not appreciably painful. Secondly, in endeavouring to observe again the personal experiences on which this contention is primarily based, in order to ascertain, if possible, exactly where the disagreement lies between Mr. Marshall and myself, I have felt somewhat embarrassed by my opponent's

<sup>1</sup> See MIND, No. 50, pp. 248-255. I may say that I am inclined to adopt Mr. Sully's view to a greater extent in the case of Suspense and Surprise than in the case of Desire and Aversion. It is partly for this reason that I confine my attention to the two latter in the present paper.

qualification of his doctrine, which admits Desire to be a "complex state containing pleasurable elements which mask the pain". I do not quite know how far this "masking" is supposed to go: and whether he conceives it possible for a pain to exist which the person feeling it does not recognise as such. At anyrate, in the present discussion I shall assume pain so successfully "masked" to be non-existent: and, on this assumption, I must affirm that I still find Desire, in my own case, to be more often than not an element not itself painful—and often a prominent element—in a feeling that as a whole is pleasurable.

I am inclined to explain the opposing view by a combination of four different methods. Firstly, I think that there is some difference in *definition*;—that we do not use the term "desire" in quite the same way.

Secondly, I think that there is a certain tendency to confuse—or too closely assimilate—the ideas of Desire and Pain, owing to a real resemblance between the two, which I will presently endeavour to state precisely.

Thirdly, I think that my opponents are apt to attend too exclusively to specially marked cases of desire; for I admit that when desire is most prominent in consciousness it is most frequently also painful.

Fourthly, I think it probable that there is a real difference in the susceptibilities of different individuals; and that the proposition that desire is painful is at anyrate more true of some persons than of others.

I. First, then, as to the difference of definition. It will be observed that Mr. Marshall says that desire involves a "thwarting of the impulse to go out towards an object". If this only means that desire involves the presence of an unrealised idea, of which the realisation would involve the extinction of the desire, I should agree that this is characteristic of all desire: but the phrase may be equally taken to imply that action for the attainment of the desired end is prevented,—in which case the characteristic only belongs to some desires and not to all. I notice this ambiguity, because I find it also in Dr. Bain's book on *The Emotions and the Will*, where it seems to me to lead to a rather confusing statement of opinion on the present question (p. 423). Chapter viii. of this book begins: "Desire is that phase of volition, where there is a motive and *not ability to act on it*". This certainly seems to imply that desire is only found where action tending to the realisation of what is desired is prevented: and Dr. Bain's illustration suggests the same idea. He says:—

"The inmate of a small, gloomy chamber conceives to himself the pleasure of light and of an expanded prospect: the unsatisfying ideal urges the appropriate action for gaining the reality; he gets up and walks out. Suppose now that the same ideal delight comes into the mind of a prisoner. Unable to fulfil the prompting, he remains under the solicitation of the motive; and his

state is denominated craving, longing appetite, desire. If all motive impulses could be at once followed up, desire would have no place; . . . there is a bar in the way of acting which leads to the state of *conflict*, and renders desire a more or less painful frame of mind."

This certainly seems to mean "all desire is painful, because desire implies a bar in the way of acting".

Hence when Dr. Bain goes on to say that "we have a form of desire in all our more protracted operations or when we are working for distant ends," it is not clear whether he means to affirm *this* species of desire to be painful, or, if so, why he means to affirm it: yet he goes on to speak of desire generally as a "form of pain".

Now I agree that desire is most frequently painful in some degree when the person desiring is inhibited from acting for the attainment of the object desired. I do not indeed think that even under these circumstances it is always painful: especially when it is accompanied with hope, and when though action for the attainment of the desired object is not possible, still some activity adequate to relieve the strain on the nerves is possible. Still I admit that when action tending to fruition is precluded, desire is very liable to be painful.

But it is surely contrary to usage to restrict the term Desire to this case. Suppose Dr. Bain's prisoner becomes possessed of a file, and sees his way to getting out of prison by a long process, which will involve, among other operations, the filing of certain bars. It would surely seem absurd to say that his Desire finally ceases when the operation of filing begins. No doubt the concentration of attention on the complex activities necessary for the attainment of freedom is likely to cause the prisoner to be so absorbed by other ideas and feelings that the desire of freedom may temporarily cease to be present in his consciousness. But as the stimulus on which his whole activity ultimately depends is certainly derived from the unrealised idea of freedom, this idea, with the concomitant feeling of desire, will normally recur at brief intervals during the process. Similarly in other cases, while it is quite true that men often work for a desired end without consciously feeling desire for the end, it would be absurd to say that they never feel desire while so working. In short, it must be allowed that the feeling of Desire is at anyrate sometimes an element of consciousness coexisting with a process of activity directed to the attainment of the desired object, or intervening in the brief pauses of such a process: and I venture to think that when the feeling is observed under these conditions, it will not be found in accordance with the common experience of mankind to describe it as essentially painful. I do not affirm that under such conditions it is in itself pleasurable: I cannot carry my introspective analysis to such a pitch of refinement as would enable me to affirm this with confidence.

What I do confidently affirm, as regards my own experience, is that the feeling of desire under these conditions, while not itself painful, is often an indispensable element of a complex state that as a whole is highly pleasurable. And all that I can learn of the feelings of others would lead me to think that I am not singular in this experience.

Take the case of an ardent mountaineer who wants to get to the top of a peak: desire is no less clearly an element of his consciousness when he is walking up the mountain than when he is kept at home by the weather: but in the former case it is at worst a neutral feeling and often seems to take on a pleasurable quality,—at any rate the pleasurableness of the whole state of which it is a part depends upon the presence of the desire: while in the latter case it is certainly most likely to be painful. Take, again, the case of hunger: the conscious desire to which we give this name does not change its fundamental character, does not cease to be hunger when the hungry man sits down to dinner. But it would surely be absurd to say that it is then ordinarily a painful element of feeling: it would only be so after an abnormally long fast. Perhaps Mr. Marshall would say that it is "masked" by pleasurable anticipation of proximate satisfaction: if so, I can only say that the masking is so complete that my introspective analysis fails to penetrate it.

II. I admit, however, that hunger, and desire generally, have a certain degree of similarity to pain, in that they are both *unrestful* states: states in which we are conscious of an impulse to get out of the present state into a future one. To use a term of Locke's, we may fairly say that both desire and pain are "uneasy" states, and thus under this common notion of uneasiness or unrest we may be led to confound the two. But I think reflexion will show the distinction clearly.<sup>1</sup> Both in feeling desire and in feeling pain we feel a stimulus to pass from the present state into a different one: but in the case of pain the impulse is to get out of the present state into some other which is only indefinitely and negatively represented as "not the present"; whereas in the case of desire, the primary impulse is towards the realisation of some definite future result. One difficulty in seeing this clearly is due to the fact that when desire is painful a secondary aversion to the state of desire is generated, which blends itself with the desire and may easily be confounded with it. But we may distinguish the two impulses by observing that they do not necessarily prompt to the same conduct; since aversion to the pain of unsatisfied desire, though it may act as an additional stimulus to work for the satisfaction of the desire, may also prompt us to get rid of the pain by suppressing the desire. And, on the other hand, when desire coexists with the pleasure that attends the

<sup>1</sup> I have discussed this point—partly in the same words—in my *Methods of Ethics*, bk. i. chap. iv. § 2.

realisation of what is desired—as it often does in a high degree—it seems to me peculiarly easy to distinguish it from pain. I should give as a good instance of this the experience of eating after an unusually long fast. I often find that in such a case appetite is very faint—hardly a perceptible feeling—before eating is begun: then, along with the pleasure derived from the satisfaction of hunger, the feeling of appetite becomes distinct and full; and is, as I have said, peculiarly easy to distinguish from pain.

III. At the same time, I quite admit that where desire is a specially prominent element of one's mental state, so that it imperiously claims attention, it is in most cases annoying or disturbing in some degree; it becomes a feeling of which we should prefer to get rid, whether by the realisation of what is desired or in some other way. And this leads me to my third explanation of the tendency to consider desire always painful; *viz.*, that the most marked and striking instances of the feeling, those that have made most impression, and that are therefore naturally recalled in memory when we think of cases of desire—these have usually been painful in some degree. Of a *very intense* desire I should admit it to be commonly true in my experience that, even when the state of which it is an element is on the whole pleasurable, the desire itself is painful in some degree. It is when the desire, being combined with other prominent elements of feeling, does not reach this absorbing and overwhelming intensity that I find it in my experience at best neutral.

It may be said, perhaps, that in these latter cases the desire itself is—viewed as *feeling*—so faint that it ceases to be within our power to determine its pleasurable or painful quality by direct introspection; while it is illegitimate to draw any inference as to the “feeling-tone” of this obscure element from the pleasurable quality of the whole state of which it is an element: it may be urged accordingly that such cases should be left out of account in the present discussion. Now I quite admit that not unfrequently during long processes of work for remote ends, the desire of the end, while remaining sufficiently strong to supply the requisite impulse to action, ceases to have a perceptible character as feeling; we only infer its presence from the actions that it stimulates, and from the satisfaction that follows on the attainment of some intermediate end which has no significance for us except as a step towards the ultimate end. But I think it is easy to give instances of pleasurable processes of activity accompanied by desires which—while not painfully intense—are strongly and distinctly felt; and at the same time are elements indispensable to the pleasurableness of the whole complex feeling that accompanies the activities stimulated by them.

Take, for instance, the case of a game involving bodily exercise and a contest of skill. I am not myself skilful in such exercises, and when I take part in them for sanitary or social purposes, I commonly begin without any desire to win the game. So long as

I remain thus indifferent, the exercise is rather tedious ; usually, however, I find after a time that a feeling of desire to win the game is excited, as a consequence of actions directed to this end ; and that, in proportion as the feeling grows strong, the whole process becomes more pleasurable. If this be admitted to be a normal experience, I shall be surprised if it is not also admitted that desire in this case is normally either a neutral or a pleasurable feeling ; certainly I am unable to detect the slightest quality of pain in it.

And it would be easy to give an indefinite number of similar instances of energetic activity carried on for an end—whether in sport or in the serious business of life—where a keen desire for the attainment of the end in view is indispensable to a real enjoyment of the labour required to attain it, and where, at the same time, we cannot detect any painfulness in the desire, however much we try to separate it in introspective analysis from its concomitant elements. In such cases, it seems to me a peculiarly unwarrantable hypothesis to suggest that the desire itself is nevertheless an extraordinarily well-masked pain.

A familiar instance is the perusal of a novel—at least of a novel in which plot is important. It will not be denied that unless the writer can rouse the reader's curiosity—his desire to know the fate of the fictitious personages—the process of reading will usually be dull, while it becomes pleasurable in proportion as the desire grows keen. At the same time the strength and prominence of the desire in the consciousness of an ordinary reader is unmistakable ; it is shown (*e.g.*) by the strength of the misleading impulse—which I think most persons who enjoy this kind of literature often have to suppress by an effort of self-control—to “look on” in order to satisfy curiosity.

IV. This last case, however, leads me to my fourth explanation of the difference of view between psychologists on this point. For I find that there is a considerable amount of variation in respect of the pleasurable ness of intense curiosity in different persons. Several friends have told me that they do not care at all about the plot of a novel ; that they would as soon read a novel backwards-way ; that they enjoy a good novel more the second time of reading than the first. I infer from all this that either no keen desire to know how the fictitious story will turn out is aroused in such persons at all, or, if it is aroused in them, it is disagreeable rather than agreeable.

I think it possible that there may be a similar variation in the case of the bodily appetites. For instance, many persons treat hunger as a pain as a matter of course ; *e.g.*, Mr. Marshall says that “hunger and thirst are typical cases of painfulness”. Now, according to my own experience, in a state of good health the desire of food is, in its initial stages and if abstinence is not carried too far, usually not painful at all : I recognise it merely as a prompting of nature, a felt impulse to change my state, by taking food, which is strictly neutral as regards its “feeling-tone”—though

it may easily become, according to its conditions or concomitants, either disagreeable or, as I have before said, at least a prominent element of a state which as a whole is agreeable. At the same time, I can easily believe that in the experience of others it may chiefly present itself as painful; because I find that this is usually the case with myself, when I am out of health.

So far I have spoken of Desire rather than Aversion,—although in some of the instances that I have given the two feelings are in fact closely blended. I have been led to do this, because the painlessness of desire is easier to illustrate; since aversion is more often an element of a state on the whole painful, being normally connected, as we have had occasion to notice, with actual pains of all kinds; and where it is thus connected we can rarely carry introspective analysis so far as to distinguish the aversion as in itself a painless element of feeling. At the same time I think that, if Desire be once admitted to be not always painful, this will carry with it a similar admission as regards aversion: since in processes of energetic action for the avoidance of prospective evils, aversion appears to me to be often a prominent element of a state of feeling on the whole pleasurable, just as desire is in processes of action for the attainment of prospective good: and in such cases the painlessness of the aversion itself seems to me often as evident as the painlessness of desire. I need only refer briefly to the common experience of the pleasurable excitement of Danger; since this complex feeling certainly contains aversion as a prominent element.

Here, again, however, I should recognise a large amount of variation in the experiences of different persons. For instance, I myself am not ever pleasurable excited by physical danger, but always simply depressed: but I have had experience of pleasurable excitement in the case of danger to social position or reputation, where aversion has been a prominent element, not discernibly painful, of a state of feeling on the whole markedly pleasurable.

A contemplation of these differences among human beings suggests a reference to the rhetorical flourish that concludes Mr. Marshall's polemical note. He says that "to understand how desire and aversion can appear as neutral excitements to any man requires the postulation of a degree of 'philosophic calm' which has lost desire in that 'apathy' at which the Greeks aimed". This seems to me a singular view. I should have thought, on the contrary, that it is the man who regards desire and aversion as uniformly painful who is likely to aim at—and to attain; if it be attainable—the "apathy" or "philosophic calm" from which all desire is excluded. On the other hand, a man whose experience resembles mine is peculiarly unlikely either to seek or to find this apathy or unperturbedness; since he is likely to hold, with Hobbes, that "the Felicity of this life consisteth not in the repose of a mind satisfied"; and that even if we can conceive a man living whose desires are at an end, we cannot conceive him living well.

## SUR LA DISTINCTION ENTRE LES LOIS OU AXIOMES ET LES NOTIONS.

Par GEORGE MOURET.

Dans une récente étude sur l'Induction et la Déduction, empreinte des idées de Mill et de Mr. Herbert Spencer (*MIND*, No. 64) Mr. L. E. Hobhouse a effleuré quelques points qui font l'objet d'un article de moi récemment publié dans la *Revue Philosophique de France*,<sup>1</sup> sur la nature des relations et des concepts, travail dont M. Hobhouse, d'ailleurs, ne paraît pas avoir eu connaissance. Je suis peut-être ainsi justifié à intervenir, non pas directement au sujet des théories soutenues par Mr. Hobhouse, et que je partage, au moins sous la forme où elles ont été exposées par Mr. Spencer, mais à l'occasion de ces théories. M. Hobhouse distingue deux modes de raisonnement. Dans l'un, on conclut du particulier au général ; c'est l'Induction. Dans l'autre, on conclut d'une série de relations conjointes A - B, B - C, à une relation A - C ; c'est la *Construction*. (Je reproduis ici textuellement ce que nous dit Mr. Hobhouse : "In the first case, we generalise a single relation ; in the second, out of several relations, all general, we construct a whole in which the resultant appears as part".) L'étude que j'ai publiée dans la *Revue Philosophique* a traité ces "Constructions" que j'ai appelées "Systèmes de relations," et c'est précisément l'axiome de Mr. Spencer, critiqué à tort, à mon avis, par Mr. Hobhouse, qui m'a mis sur la voie que j'ai suivie. Dans la présente note, je veux appeler l'attention sur une distinction fondamentale, relative à ces "Constructions," distinction qui ne ressort pas suffisamment de l'étude de M. Hobhouse, ce qui laisse planer un certain vague sur les conclusions de cet auteur, et notamment sur la signification qu'il attache à l'axiome de Mr. Spencer.

Lorsqu'on nous parle d'une relation A - C, dérivant des deux relations conjointes A - B et B - C, et qui fait partie intégrante du groupe des trois termes, de quelle relation s'agit-il ? Car le problème que se pose Mr. Hobhouse, à savoir : par quelle raison devons nous conclure des deux relations composantes à la relation résultante ? doit être résolu différemment suivant les cas.

Pour préciser la question que je pose, je choisirai un exemple simple, emprunté à la Mécanique. Supposons que les termes A, B, et C soient des forces, et que les forces A et C fassent respectivement équilibre à la force B, en sorte que les relations A - B, et B - C sont des relations d'équilibre. La mécanique nous enseigne que, dans ce cas, les forces A et C se font équilibre, et que, de plus, elles sont égales. Or il n'y a pas là une conclusion unique ; il y a deux conclusions distinctes, deux jugements différents, car l'égalité

<sup>1</sup> *L'Egalité Mathématique, 1<sup>re</sup> partie.* Rev. Philos. An. xvi., No. 8.

des forces et l'équilibre ne sont pas les mêmes notions ; c'est ce que j'ai montré tout au long dans mon travail sur l'égalité. Ainsi il est certain qu'il existe entre A et C, deux relations distinctes, l'une d'équilibre, et l'autre d'égalité.

Mais le point essentiel, et ce qui fait l'objet de mon intervention dans les questions soulevées par M. Hobhouse, c'est que ces deux relations, bien qu'elle dérivent du même groupe, de la même "Construction," n'ont ni la même origine ni le même fondement. En d'autres mots, il y a deux modes de dérivation différents, et pas conséquent la conclusion tiree d'une Construction s'appuie sur un principe ou sur un autre, suivant sa nature particulière.

Examinons quels sont ces deux principes. Dans l'exemple cité, le fondement de la relation d'équilibre ne repose pas évidemment sur la considération des relations conjointes d'équilibre. L'équilibre est connu, en tant que notion, dès que l'on a observé deux forces, c'est à dire deux corps conservant un état de repos, bien que chacun des corps ait une tendance à prendre une certaine accélération. En concluant donc à l'équilibre entre A et C, on rapproche un fait déjà connu comme fait général, d'un cas particulier, qui est le cas de deux forces faisant respectivement équilibre à une troisième. Ce rapprochement, ou pour parler d'une manière plus précise, cette coexistence entre les trois relations d'équilibre est un fait, une loi, un principe, et la raison qui conduit à conclure à l'équilibre A - C, est celle qui constitue le fondement de toute Induction, de quelle que nature que soit ce fondement, qu'il résulte d'un fait d'association, ou d'une nécessité métaphysique.

La seconde relation conclue dans le cas considéré, celle d'égalité de force, a une origine moins direct que l'équilibre. Elle dérive, en effet, du système de deux relations conjointes d'équilibre ; nous disons souvent, il est vrai, que les forces A et C sont égales, *parce qu'elles* produisent le même effet sur la force B, mais ce "parce que" n'est pas une raison ; c'est une manière de rappeler la définition de l'égalité. Par exemple, le cercle est défini : "toute courbe dont tous les points sont également éloignés d'un même point appelé centre" ; mais quand nous disons d'une certaine figure : "c'est un cercle, *parce que* tous ses points sont également éloignés d'un même point," le "parce que" n'indique pas un fait nouveau, mais simplement le rappel d'une définition, de même que le syllogisme est le rappel d'un fait déjà connu.<sup>1</sup>

Dire qu'il y a égalité entre deux forces quelconques, ce n'est pas dire autre chose, que ces deux forces sont susceptibles de faire équilibre à une troisième. Par conséquent, conclure des équilibres A - B et B - C à l'égalité A - C, ce n'est pas exprimer un fait nouveau, ce n'est pas affirmer une coexistence entre des relations déjà connues et d'origines différentes, c'est répéter une définition,

<sup>1</sup> Ce rappel, comme l'a fort bien montré Mr. Spencer, n'implique qu'une seule chose : l'intuition d'une ressemblance ; aucun axiome n'est réellement invoqué dans l'énoncé d'un syllogisme.

ou, si cette association A - B - C se présente pour la première fois à l'esprit, c'est commencer à se former une notion nouvelle, qui n'est pas celle de l'équilibre, mais qui en est composée. L'égalité A - C n'est pas une chose distincte du système des deux relations conjointes d'équilibre A - B et B - C ; ce n'est pas un élément déjà connu autrement, et qui viendrait s'y ajouter. Pour les nominalistes, dont je suis, ce n'est même pas un élément nouveau, et l'égalité n'est qu'un mot commode pour désigner le système A - B - C et ses propriétés. Les conceptualistes ne s'en tiennent pas là, il est vrai ; ils supposent que sur ce groupe, vient se greffer un nouvel élément qui est l'idée abstraite d'égalité, mais cet élément se trouve en connexion intime avec le groupe ; il ne tire pas son origine d'ailleurs, et il résulte de la fusion de tous les groupes semblables, A - B - C.

Par conséquent, et quelle que soit la doctrine adoptée, en concluant à l'égalité des deux forces, on n'exprime pas un fait, une loi, mais on introduit dans son esprit une notion nouvelle, qui est celle d'un mode d'assemblage particulier de relations, ou bien encore l'on se remet en l'esprit cette notion, déjà connue à la suite de la perception de groupes semblables. Tous ceux qui ne considèrent pas les mots comme représentant des entités toutes faites dans l'esprit seront d'accord avec moi sur ce point.

Il y a, en résumé, dans les deux conclusions que l'on tire de la considération du groupe A - B - C, deux cas bien différents. L'un est celui qui correspond au jugement synthétique de Kant ; c'est l'affirmation de la coexistence de l'équilibre A - C avec les équilibres A - B et B - C. L'autre est un jugement analytique, c'est la perception de l'égalité entre A - C, c'est à dire la perception même du groupe A - B - C.<sup>1</sup>

Mr. Hobhouse cite un exemple géométrique emprunté à Mr. Bradley, celui de trois points A, B, C, situés de telle sorte que A soit à droite de B, et B à droite de C.

Ici, au premier abord, on ne peut dégager de cette assemblage qu'une seule conclusion, et cette conclusion est un axiome ; c'est le fait que le point A est aussi à droite du point C. Je montrerai, dans une prochaine étude sur la grandeur, qu'on peut en tirer aussi une conclusion analytique, qui est un élément du concept grandeur.

J'en viens maintenant à l'axiome de Mr. Spencer, que Mr. Hobhouse désigne sous le nom d'Axiome de Construction, à cet axiome

<sup>1</sup> Je simplifie ici la question ; dans mon étude sur l'égalité, j'ai montré que les "Constructions" d'où dérivent les concepts et les relations, sont soumises à certaines conditions (solidarité, coexistence, abstraction, et relativité) que ne remplissent pas nécessairement tous les assemblages de relations, et qui, quand elles sont remplies, le sont en vertu de certaines lois ou axiomes (principe d'indétermination, et principe d'incompatibilité). C'est pourquoi une notion nouvelle repose toujours sur certains faits, c'est pourquoi les définitions ne sont pas des opérations arbitraires ; il n'y a d'arbitraire, au point de vue logique, que le choix des mots.

que deux choses qui ont une relation déterminée avec une troisième chose ont une relation déterminée entre elles.

Si l'on se place au point de vue psychologique, qui est celui de Mr. Spencer, il y a là certainement un axiome qui a de nombreux corollaires, entre autres cet axiome fondamental que deux relations semblables (égales, dirait Mr. Spencer) à une troisième sont semblables l'une à l'autre.

Mais si l'on se place au point de vue ordinaire, qui est celui de la considération des phénomènes du monde extérieur, c'est à dire au point de vue des Sciences, et en particulier de la Logique, l'Axiome de Construction n'est plus un axiome, c'est une définition, toute notion—n'est pas autre chose qu'un assemblage de relations ou Construction, satisfaisant à certaines règles, et dont le groupe de deux relations conjointes, signalé par Mr. Spencer, n'est qu'un cas particulier. Ce qui fait le caractère des notions objectives telles que le temps, l'espace, la force, la masse, la longueur, la valeur, la vertu, c'est précisément cette complexité. Chaque notion est un édifice construit avec des matériaux qui sont eux-mêmes des édifices, quoique moins complexes. La nature des matériaux et la forme de l'édifice spécifient la notion. Quant à sa réalité, elle n'est pas autre chose que ce qui relie tous les matériaux et en fait un tout, c'est-à-dire la coexistence des éléments du système des relations. Ce n'est pas, comme disait Mill, la possibilité de certaines sensations, ce n'est pas comme disent les sensualistes, des groupes de sensations ; c'est la *possibilité* elle-même, abstraction faite de la nature particulières des sensations, ou si l'on préfère, des états de conscience.

En résumé, dans la considération d'une Construction, deux points de vue interviennent, suivant que le jugement porté repose sur une *loi*, ou qu'il constitue la perception d'une *notion*. En traitant donc des Constructions il est essentiel d'indiquer le point de vue auquel on se placer ; car dans le dernier cas, une seule Construction est en jeu, tandis que le second cas comporte la considération implicite de plusieurs Constructions, autrement dit, la coexistence de plusieurs choses.

Il est un dernier point sur lequel je voudrais encore faire une remarque ; il s'agit de la nature de la déduction. Il ne me semble pas que Mr. Hobhouse ait tout à fait mis en lumière ce qui en constitue l'essence. Sans doute la déduction implique la généralisation, mais c'est là un trait commun à tous les actes intellectuels ; intelligence et abstraction sont synonymes. L'essence de la déduction est tout autre : opposée à l'Induction, la Déduction est une restriction de la généralisation ; voilà son vrai caractère. Ce n'est pas, d'ailleurs, l'acte d'appliquer une vérité générale à un cas particulier, ce n'est pas simplement un syllogisme, autrement son rôle serait insignifiant, et l'étude qu'en ont faite les moines du moyen-âge serait amplement suffisante. La Déduction scientifique consiste dans l'application de plusieurs vérités générales

distinctes, à un cas complexe, et cette combinaison est accompagnée nécessairement d'un décroissement de généralité ; sinon il n'y a pas déduction. Quand je dis que la matière est inerte, étendue, et impénétrable, je ne fais pas une déduction, je réunis ensemble plusieurs vérités générales, pour les appliquer à un cas aussi général que ceux auxquels ces vérités s'appliquent séparément. Il n'y a déduction que quand les ensembles d'objets sur lesquels portent les vérités générales ne sont pas les mêmes pour chaque vérité ; la conclusion obtenue par déduction n'est alors applicable qu'à la partie commune à ces divers ensembles. Par exemple, cette propriété que les angles à la base d'un triangle sont égaux ne s'applique qu'aux triangles isoscèles, mais elles est déduite de vérités qui s'appliquent les unes à tous les triangles, isoscèles ou non, les autres à une figure plane quelconque, les autres à une figure quelconque dans l'espace ; d'autres enfin s'appliquent à tous les objets de connaissance, géométriques ou non.

Il est à peine besoin d'ajouter, que contrairement à l'opinion commune des mathématiciens, une conclusion obtenue par déduction n'est pas une vérité nouvelle ; elle n'est que l'expression, simplifiée, de vérités déjà connues. La seule chose nouvelle, c'est le mode d'association considéré, c'est à dire les données de la question.

En termes précis, dans la théorie que j'ai exposée sur la genèse des concepts et des relations, la déduction consiste selon sa forme la plus simple, dans l'application d'une induction à une partie seulement d'un système complexe donné de relations. Le syllogisme est l'application d'une induction à la totalité du système, et c'est pourquoi il n'est qu'une répétition logiquement et théoriquement inutile.

## VII.—CRITICAL NOTICES.

*Justice : Being Part IV. of the Principles of Ethics.* By H. SPENCER. Williams & Norgate, 1891. Pp. 292.

Mr. Spencer's book on "Justice" is stated in his *Preface* to be Part IV. of a comprehensive work on *The Principles of Ethics*, of which Part I. was published in 1879 as *The Data of Ethics*. "Led," he says, "by the belief that my remaining energies would probably not carry me through the whole, I concluded that it would be best to begin with the part of most importance. Hence, passing over Part II., 'The Inductions of Ethics,' and Part III., 'The Ethics of Individual Life,' I devoted myself to Part IV., 'The Ethics of Social Life : Justice.'"

The contents of the new book may be summarily described by saying that the first seven chapters are ethical, the last seven mainly political, while the intervening fifteen are concerned with a subject common to ethics and politics—the determination on general grounds of the rights of individuals. In the present notice, it seems best to direct attention chiefly to the ethical aspect of the treatise.

Mr. Spencer begins by recalling briefly his general view of ethics, as given in *The Data of Ethics*. "The primary subject-matter of ethics is conduct considered objectively as producing good or bad results to self or others or both." The primary question, therefore, relates to the determination of the ultimate end and standard by which "goodness" and "badness" of results are to be estimated. In *The Data of Ethics* a double conception was presented of this ultimate end or standard. Regarded from a biological point of view the End was recognised as "Life estimated by multiplying its length into its breadth," i.e., by taking into account, not simply duration, but also quantity of change. "The conduct called good rises to the conduct conceived as best," when it "simultaneously achieves the greatest totality of life, in self, in offspring, and in fellow-men." But regarded from the point of view of subjective psychology, a different ultimate end was presented, viz., "desirable feeling called by whatever name—gratification, enjoyment, happiness". Accordingly, Mr. Spencer's system, as expounded in this earlier book, appeared open to the criticism that it assumed too easily a practically complete coincidence between Life and Pleasure; i.e., it assumed that actions conducive to Maximum Life would always be no less conducive to Maximum Pleasure, and *vice versâ*. This fundamental assumption Mr. Spencer seems still to maintain; but, on the whole, we may say that, in the treatise now before us, the hedonistic aspect of his system drops somewhat

into the background. Thus in the first chapter, on "Animal Ethics," the ultimate end—not only of human conduct but of animal "conduct at large"—is stated to be "the greatest length, breadth, and completeness of life"; while "relatively to the species" acts are said to be good "which are conducive to the preservation of offspring or of the individual". Such acts may be "egoistic" or "altruistic": thus there are "two cardinal and opposed principles of animal ethics: for (1) "within the family group most must be given where least is deserved," while (2) "after maturity is reached benefit must vary directly as worth"—"worth" being measured by "fitness for the conditions of existence". The second of these principles or laws is limited by the first; since so far as adults act for the sustentation of their children, they do not receive from their own acts "benefit" in proportion to their worth: and it is further limited by the consideration that "if the constitution of the species and its conditions of existence are such that sacrifices, partial or complete, of some of its individuals so subserve the welfare of the species that its numbers are better maintained than they would otherwise be, then there results a justification for such sacrifices".

This third point, however, is not, in Mr. Spencer's view, an essential one: he recognises only "*two* essential but opposed principles of action by pursuance of which each species is preserved," and in considering successively (in chaps. ii. and iii.) "sub-human" and "human" Justice, he concerns himself only with one of these principles, "passing over the law of the family as composed of adults and young". It would seem that this limitation of view is not unlikely to lead to error, when an attempt is subsequently made to analyse and trace the growth of the "sentiment" and "idea" of Justice among men, and to determine its fundamental formula: since the common-sense of mankind certainly recognises family relations as a part of the sphere of Justice. And in fact when Mr. Spencer comes in later chapters (xx. and xxi.) to treat of the mutual rights or claims of husbands and wives, and of parents and children, the inadequacy of the principle of Justice formulated in his earlier chapters becomes manifest.

For the present, however, let us "consider the law of the species as composed of adults only". Considering this first in the case of "sub-human life," Mr. Spencer lays down as the "law of sub-human justice" that "each individual shall receive the benefits and the evils of its own nature and its consequent conduct". In a certain sense, this law is said to "hold without qualification in sub-human life": in another sense, it is explained that "sub-human justice is extremely imperfect, both in general and in detail". In general, it is imperfect "in the sense that there exist multitudinous species the sustentation of which depends on the wholesale destruction of other species": which, according to Mr. Spencer, implies that "the species serving as prey have

the relations between conduct and consequences habitually broken".

But surely the existence of a predatory species is a part of the conditions of existence of the species preyed upon; and if the former eats up the latter, it would seem that the latter's unfitness to the conditions of its existence would be demonstrated, and Spencerian Justice perfectly realised in its annihilation. It may be said, as Mr. Spencer goes on to say, that "enemies are causes of death which so operate that superior as well as inferior are sacrificed": and that other "accidents"—"inclemency of weather," "scarcity of food," "invasions by parasites"—fall "indiscriminately upon superior and inferior individuals". Here, however, the term "superior" seems ambiguous: it may mean (1) more highly organised, or (2) more qualified to preserve itself and its species under hypothetical conditions—*e.g.*, with extremes of frost and heat, exceptional famines, foes and parasites left out—or (3) more qualified to live under actual conditions, though not sufficiently vigorous to resist the destructive forces. The two former meanings seem hardly relevant, when we are basing ethical principles on biological laws; for the adaptation of the species in accordance with biological laws must be adaptation to an actual, not an ideal, environment. And if the third meaning be taken, I do not see that "sub-human justice" can be said to be imperfect, according to Mr. Spencer's statement of its law, because it is not finely graduated. Suppose that, in a given region, two-thirds of a certain species of animal are killed by extreme cold: each individual is none the less "subject to the effects of his own nature" because some are hardier than others. The point is that no one is hardy enough.

Proceeding, we learn that the individualistic "law of sub-human justice" is further qualified by the conditions of gregariousness. Firstly, each member of a group of gregarious animals receives the benefits and evils not only of "his own nature and its consequent conduct" but of the nature and consequent conduct of some or all of the other members of the group: even "an occasional mortality of individuals in defence of the species" may further the preservation of the species "in a greater degree than would pursuit of exclusive benefit by each individual". This last "limitation of sub-human justice," however, is, in Mr. Spencer's view, solely due to the coexistence of living enemies of the species in question. Secondly, a condition "absolute for gregarious animals" is that "each member of the group, while carrying on self-sustentation and sustentation of offspring, shall not seriously impede the like pursuits of others". This condition, in the case of some gregarious creatures, even becomes a law enforced by sanctions,—as Mr. Spencer affirms on the authority of observers of beavers, bees, crows and rooks.

In the illustrations that he gives of this enforcement, however, Mr. Spencer seems to me to put together cases that should be carefully distinguished. In some cases *abnormal* action on the

part of a member of a gregarious group, tending to interfere with the sustentation of other members, is punished by those other members—as when “among rooks, a pair which steals the sticks from neighbouring nests has its own nest pulled to pieces by the rest”. But the case of a class in the gregarious community only organised for the performance of a certain function, and destroyed when this function is performed that it may not be a burden on the community—as when the drones of a hive are massacred by worker-bees—is surely quite different. I dwell on this because “sub-human justice” is introduced to lead up to “human justice”; and, while the former kind of repression of acts inconvenient to the community is certainly analogous to the mainly individualistic legislation of actual civilised societies, the latter suggests a drastic treatment of those who neither “toil nor spin” such as the most bloodthirsty socialist has never yet recommended. Moreover, when Mr. Spencer says that “conditions such that by the occasional sacrifices of some members of a species, the species as a whole prospers” are “relative to the existence of enemies,” he seems to ignore this normal destruction of drones by workers.

I pass now to “Human Justice”; which Mr. Spencer regards as a “further development of sub-human justice,” the two being “essentially of the same nature” and forming “parts of a continuous whole”. Of man, as of all inferior creatures, we are told that “the law by conformity to which the species is preserved is that among adults the individuals best adapted to the conditions of their existence shall prosper most, and that individuals least adapted to the conditions of their existence shall prosper least.... Ethically considered, this law implies that each individual ought to receive the benefits and evils of his own nature and subsequent conduct.” But, in the case of man, the operation of this law is admitted to be modified by the condition of gregariousness in a manner only “faintly indicated among lower beings”. For “as communities become developed” the “limits to each man’s activities necessitated by the simultaneous activities of others” become more and more “recognised practically if not theoretically”: also in the case of this “highest gregarious creature” the principle of individualistic justice has to be qualified, to a greater extent than in the case of lower gregarious creatures, by admitting the sacrifice of individuals for the benefit of the community. This highest creature is distinguished by the characteristic of fighting his own kind; and “the sacrifices entailed by wars between groups” of human beings have been “far greater than the sacrifices made in defence of groups against inferior animals”. But “the self-subordination thus justified, and in a sense rendered obligatory, is limited to that which is required for defensive war”. It may indeed be contended that “offensive wars, furthering the peopling of the earth by the stronger, subserve the interest of the race”. But, in Mr. Spencer’s view, “it is only

during the earlier stages of human progress that the development of strength, courage, and cunning are of chief importance; . . . the arrival at a stage in which ethical considerations come to be entertained is the arrival at a stage at which offensive war ceases to be justifiable". And he holds that even defensive war, and the qualifications of the abstract principle of justice which it involves, belong to a transitional condition, and "must disappear when there is reached a peaceful state". Such qualifications therefore belong to "relative" not "absolute ethics". In absolute ethics, the law that "each individual ought to receive the benefits and evils of his own nature" is true without qualification; and Mr. Spencer affirms that it is "obviously that which commends itself to the common apprehension as just".

It seems to me that the effects of gregariousness, in the highly developed form in which it appears in the human race, are too lightly treated in this argument. It is too hastily assumed that the necessity for subordinating the welfare of the individual to that of the species arises solely from war: and in the consideration of war and its consequences Sociology and Ethics are too much mixed. Granting that it would be for the advantage of the human race that war should disappear, it does not follow that it will disappear; it might similarly be better for sub-human life that beasts of prey and parasites should disappear, but Mr. Spencer's faith in sub-human evolution does not lead him to assume that this will be its ultimate result. Granting, again, that industrialism will put an end to militancy, it is not shown that conflicts of interest among industrial groups—such as we see at present in apparently growing intensity—will not continue, and that the exigencies of such conflicts will not impose on individuals a severe subordination to the interests of their respective groups. Granting, finally, that such industrial conflicts are ultimately to cease, it seems rash to assume that when this consummation is reached, Mr. Spencer's individualistic principles of justice will be found reigning unchecked: for it may be that this result will be brought about by an implication of interests and a development of sympathy which will render all men "members one of another" to a degree beyond our present experience: so that when any one suffers the rest will inevitably suffer with him and the rule that "each is to bear the evils of his own nature" will become impracticable or unmeaning. I do not prophesy that these things will be: but if Mr. Spencer is allowed to "fancy warless men" and lay down *a priori* rules of conduct for a world lapped in universal peace, I do not see why Mr. Bellamy, or any one else, may not with equal legitimacy fancy more unselfish men, and construct a still more Absolute Ethics for a non-competitive Utopia.

And I cannot admit that Mr. Spencer's principle is "obviously that which commends itself to the common apprehension as just". Doubtless the popular phrases that a man "has no one to blame

but himself," that "he has made his own bed and must now lie in it," or that another has "fairly earned his reward," indicate the consciousness that justice demands a proportion between effort and advantage. But we commonly recognise that equal efforts do not produce equal results: and it is not "obvious" to the common-sense of civilised men that Justice requires a man to suffer for failures not due to wilful wrong-doing or neglect. I agree with Mr. Spencer that it would be practically disastrous to adopt the communistic principle that "each shall make the same effort, and that if by the same effort, bodily or mental, one produces twice as much as another he is not to be advantaged by the difference". Still I think that this principle is in accordance with the prevalent view of ideal justice, so far as the comparatively inefficient individual is not to blame for his comparative inefficiency;—though, as the impracticability of realising the principle under the actual conditions of human life is generally recognised, it presents itself as a principle of Divine rather than of human justice.

Making these reserves, I recognise much truth in Mr. Spencer's account (in chaps. iv. and v.) of the origin and growth of the "sentiment" of Justice, and also in his characterisation of the "idea" of Justice, which the individualistic development of modern civilised society has tended to render prevalent. He begins with what he rather strangely calls the "egoistic sentiment of justice"—the individual's resentment of interference with the pursuit of his private ends—and proceeds to explain how the "altruistic sentiment of justice" comes into existence by the aid of a "pro-altruistic sentiment having several components". He explains how the egoistic resentment of interference combines with fear of similar resentment and retaliation on the part of others if they are interfered with, and also with the dread of social reprobation, the dread of legal punishment and the dread of Divine vengeance for such interference: and how, society being held together by the "pro-altruistic" sentiment thus compounded, the development of sympathy through gregariousness gradually produces the genuine "altruistic" sentiment of justice. In this way the "conception of a limit to each kind of activity up to which there is freedom to act" gradually "emerges and becomes definite" in human thought. The idea of Justice that thus emerges contains two elements. "Inequality is the primordial ideal suggested. For if the principle is that each shall receive the benefits and evils due to his own nature and consequent conduct, then since men differ in their powers, . . . unequal amounts of benefit are implied." On the other hand, the recognition of the need of "mutual limitations of men's actions" involves the conception of Equality; since "experience shows that these bounds are on the average the same for all". But the appreciation of these two factors in human justice has long

remained unbalanced. Thus "in the Greek conception of justice—which admitted slavery as just—there predominates the idea of inequality," and "the inequality refers not to the natural achievement of greater rewards by greater merits but to the artificial apportionment of greater rewards to greater merits". On the other hand, in the dictum of Bentham that "everybody is to count for one, nobody for more than one" the idea of inequality entirely disappears. It has, in short, been left for Mr. Spencer to give the true conception of Justice by "co-ordinating the antagonistic wrong views," and showing that the ideas of equality and inequality "may be and must be simultaneously asserted," being "applied the one to the bounds and the other to the benefits". The formula of justice, so conceived, may be precisely expressed as follows: "Every man is free to do that which he wills provided he infringe not the equal freedom of another man".

In an Appendix (A) Mr. Spencer recognises that Kant's "Universal Principle of Right"—with which he was till recently unacquainted—is closely allied to his own: but he points out that Kant "enunciates an *a priori* requirement, contemplated as irrespective of beneficial ends," whereas Mr. Spencer's "law of equal freedom" is to be regarded as "the primary condition which must be fulfilled before the greatest happiness can be achieved by similar beings living in proximity". But when the "greatest sum of happiness" is thus expressly stated to be the "remote end" to which Mr. Spencer's formula simply prescribes the indispensable means, I think it becomes clear that his criticism of Bentham's dictum above quoted involves a misunderstanding. For, as Mill says, "the greatest happiness principle is a mere form of words without rational significance, unless one person's happiness, supposed equal in degree,<sup>1</sup> is counted for as much as another's". The dictum, in short, is merely designed to make the conception of the end precise, not to determine anything as to the legal rules by which the end may be best attained.

How then is it known that Equal Freedom thus understood is unconditionally the best means to the attainment of the greatest sum of human happiness? Several lines of argument in Mr. Spencer's view combine to give this principle the highest imaginable "warrant". First there are the biological considerations, yielded by a survey of life or conduct at large, which we have before examined. Secondly, Mr. Spencer tries to show, in the history of human institutions and ideas, a gradual growth of this conception into distinctness. I think he has some right to claim as an example of this the doctrine of natural law, as held by a succession of jurists from Roman times to the eighteenth

<sup>1</sup> Mill here adds "with the proper allowance made for kind". The addition seems to me either superfluous or erroneous: but the question whether it is so or not is not relevant to the present issue.

century ; along this line of thought we may fairly trace a development towards the modern individualistic ideal. Other parts of Mr. Spencer's historic argument have less force ; e.g., a reference to the "Christian maxim—Do unto others as ye would that others should do unto you"—is hardly relevant to a definition of strict Justice. It is not, however, on a biological or a historical basis alone that Mr. Spencer rests the Formula of Justice. The Law of Equal Freedom is, in his view, "an immediate dictum of the human consciousness after it has been subjected to the discipline of prolonged social life". It is an ethical intuition, comparable in self-evidence with the axioms of geometry, though "relatively vague" and needing, far more than the mathematical intuitions, to be subjected to "methodic criticism". It does not, indeed, seem to be a dictum of every developed human consciousness : since, as Mr. Spencer tells us with much emphasis, the "reigning school of politics and morals" treat it with scorn, and "daily legislation" serenely overrides it. Nevertheless, Mr. Spencer maintains (in chap. viii.) that all "rights truly so-called are corollaries deducible from it"; and these corollaries will be found "one and all" to correspond with legal enactments of modern States.

Then, in ten successive chapters, he works out this correspondence in detail, by deducing from the Law of Equal Freedom "the right to physical integrity," the "rights to free motion and locomotion," the "rights to the uses of Natural media," the rights of property, corporeal and incorporeal, the rights of gift and bequest, of free exchange, free contract, free industry, free belief and worship, free speech and publication. In each case Mr. Spencer appends a brief account of the historic process by which, as civilisation has progressed, these rights have come to be recognised with increasing clearness and fulness. No one is more skilful than Mr. Spencer in exhibiting the cumulative force of a comprehensive and complex argument : and many parts of these chapters are both interesting, though dealing with trite topics, and effective for Mr. Spencer's purpose. I think, however, that in several cases the deductions from Mr. Spencer's principle are not performed with sufficient exactness ; and that, if they were made more exact, the discrepancy between the results obtained by deduction and the established laws of modern States would be more marked. This would not, indeed, necessarily invalidate Mr. Spencer's conclusions ; since, firstly, actual law may be wrong, and secondly, it may be right but not ideal, a compromise inevitable at the present stage of social development : for Mr. Spencer's idea of Justice, as he is careful to state, is "appropriate to an ultimate state, and can be but partly entertained during transitional states". But it would be an advantage to have the three things—the ideal rights of an ideal society, the legal rights as they ought to be here and now, and the actual legal rights—more clearly and fully

compared. As it is, I fear that the reader will not always thoroughly distinguish the three questions : (1) 'How far can we know the relations of members of an ideal society?' (2) 'How far ought we to imitate these relations here and now?' (3) 'What changes in our actual law would this imitation involve?'

One cause of inexactness in Mr. Spencer's deductions lies in the unprecision of his fundamental formula. The simplest statement of the "Law of Equal Freedom" is that "the liberty of each" should be "limited only by the like liberties of all". This, however, as Mr. Spencer sees, might be interpreted as allowing A to knock B down if he were willing to take his chance of being knocked down by B. To exclude this, Mr. Spencer defines the formula as meaning "that each in carrying on the actions which constitute his life for the time being and conduce to the subsequent maintenance of his life, shall not be impeded further than by the carrying on of those kindred actions which maintain the lives of others". But he does not seem always to keep to this definition, vague as it is : for instance, in discussing the "Rights to the uses of Natural Media" he lays down that "vitiation of air" which is "mutual" "cannot constitute aggression" : though it would seem that such vitiation might easily impede the maintenance of the lives of the mutual vitiators. Sometimes, again, a wider and more purely utilitarian meaning is given to the formula. Thus we are told that "considered as the statement of a condition by conforming to which the greatest sum of happiness is to be obtained, the law forbids any act which inflicts physical pain". But if it is so "considered" why does it take account of *physical*<sup>1</sup> pain only, and why does it forbid any act inflicting such pain, and not merely acts that cause a balance of pain on the whole? Mr. Spencer would perhaps reply that, in an ideal society, all right acts cause "pleasure unalloyed by pain anywhere":<sup>2</sup> but then such a society is so unlike that in which our ancestors have lived that their experiences can hardly have generated any trustworthy intuitions with regard to it.

The vagueness of Mr. Spencer's fundamental formula is strikingly illustrated by the manner in which he applies it (chap. xi.) to the burning question of Right to the Use of Land. For here the "law of equal freedom" is allowed to drop the idea of "freedom": it is converted into the proposition that "men have equal claims to the use of land". Equality, not Liberty, is here the point; for, obviously, the admission of "equality of claims" does not in any way determine how much freedom is to be allowed to any one in using land: indeed, as Mr. Spencer goes on to argue, the principle is realised by "the people's supreme ownership of the land" as asserted in the right of "appropriation".

<sup>1</sup> Of course, in a sense all pain is "physical," but I presume Mr. Spencer is using the term in a narrower sense.

<sup>2</sup> *Data of Ethics*, p. 101.

tion of land for public purposes" claimed and exercised by modern Governments. But if the "law of equal freedom" as applied to the use of land is satisfied by "the people's ownership" of the commodity, it would seem to admit a completely communistic system, in which all management and cultivation of land would be strictly public, and private use would only begin after the product was divided. And in fact Mr. Spencer's deduction of the Right of Property (chap. xii.), as established in modern civilised societies, is singularly the reverse of cogent. After describing the manner in which private ownership grows up, he says that, "though we cannot say that ownership of property, thus arising, results from actual contract between each member of the community and the community as a whole, yet there is something like a potential contract; and such potential contract might grow into an actual contract if one part of the community devoted itself to other occupations, while the rest continued to farm; a share of the produce being in such case payable by agreement to those who had ceased to be farmers, for the use of their shares of the land". But he adds that "we have no evidence that such a relation between occupiers and the community has ever arisen"; and merely suggests that hereafter "there may again arise a theoretically equitable right of property". I am therefore unable to see why in subsequent discussions he allows himself to treat existing rights of property as though they had been adequately justified by his formula.

In an Appendix (B) Mr. Spencer suggests that in England the sums paid in poor-relief since 1601 may be reasonably held to satisfy the just demands of the landless, as they have not an equitable claim to more than "the original prairie value of the land". But, granting that the Law of Equal Freedom can be properly fulfilled by this method of what has been called "ransom," it may surely be contended that, on his own principles, the claim of the landless extends at least to *all* the present value of the land after subtracting what would now have to be paid to bring it from its original condition to its present degree of utility, —*i.e.*, not the prairie value alone, but the prairie value *plus* the "unearned increment"; and it may be contended further that the existing landless ones cannot reasonably be held to have been compensated by poor-rates paid to their ancestors.

It would, however, be out of place to argue here the economico-political issue thus raised. I notice it here chiefly in order to point out how clearly the whole discussion shows the inadequacy of the single formula of justice offered by Mr. Spencer. When we are inquiring what compensation is justly due to persons whose rights have admittedly been encroached upon, supposing the encroachments have been sanctioned by law and custom and complicated by subsequent exchange, it is evident that the Law of Equal Freedom cannot help us; we want some quite different principle of Distributive or Reparative Justice.

A similar conclusion is suggested by the discussion, in chapters xx. and xxi., of the Rights of Women and Children. Firstly, in considering the position of married women, Mr. Spencer seems to assume, without justifying the assumption, that it is not to be settled simply by free contract between men and women. But surely the question of the Marriage-Law ought to be more frankly faced by a thorough-going individualist pursuing a high *priori* road. If he intends to allow perfect freedom of contract in determining conjugal relations, he ought to admit openly his breach with the law and morality of all civilised societies; if not, he ought to make quite clear how he justifies restrictions on freedom of contract. Again, assuming that the State has to determine a division of power and responsibility between husbands and wives, surely it is manifest that this must be done on some principle of justice quite different from Mr. Spencer's formula. We are told, for instance, that "justice appears to dictate" that "the power of the mother may fitly predominate during the earlier part of a child's life, and that of the father during the latter part". But what kind of Justice? Certainly not the Law of Equal Freedom. Similarly when we are told that "since, speaking generally, man is more judicially-minded than woman, the balance of authority should incline to the side of the husband," the proposition—however sound—seems to have no connexion with Mr. Spencer's Formula: though we may perhaps trace in it a connexion with the Greek conception of Justice, as "inequality established by authority," which has been repudiated in a previous chapter.

After civil rights, the reader may perhaps expect to pass, in chapter xxii., to a discussion of constitutional rights, on the basis of Absolute Justice. He finds, however, that in Mr. Spencer's view "there are no further rights, truly so called," than the civil rights already set forth: "so-called political rights" being "but an instrumentality for the obtainment and maintenance" of these civil rights. The conception (*e.g.*) of the "power of giving a vote" as "itself a right" involves a "confusion of means with ends". Hence, in the discussion that follows on the structure of Government, the *a priori* method is almost entirely abandoned. Mr. Spencer, indeed, implies obscurely that there is a "constitution of the State justified by absolute Ethics"; but he makes no attempt to determine it otherwise than by the vague suggestion that it "must be a constitution in which there is not a representation of individuals but a representation of interests". The only topic under the head of the constitution of the State, on which Justice again becomes the governing conception, is the "distribution of State-burdens"; but here again we feel strongly the need and the absence of some principle other than Mr. Spencer's formula. For instance, it may be true that "as life and personal safety are, speaking generally, held equally valuable by all men," such public expenditure as is entailed by use of these shall "fall equally on all": but the conclusion is hardly deducible from the Law of Equal Freedom.

The *duties* of the State, on the other hand, can be simply determined by the fundamental formula, applied positively and negatively: it must "prevent interferences with individual action beyond such as the social state itself necessitates". Justice requires it to do this adequately: and Justice requires it to do nothing further,—at anyrate if the further action is either coercive or expensive; since either coercion or expenditure, beyond what is needed for the protection of individual rights, is itself an infringement of these rights. It would hardly be suitable in the present notice to discuss adequately Mr. Spencer's application of this simple principle, which will be, in the main, familiar to readers of his previous writings. I will only say, briefly, that the consequences of the political empiricism that disregards this principle are severely expounded, and impressively illustrated by modern instances, in the concluding chapters.

H. SIDGWICK.

*Les Idéologues. Essai sur l'histoire des Idées et des Théories scientifiques, philosophiques, religieuses, etc., en France depuis 1789.* Par F. PICAVET, Docteur des lettres, Agrégé de philosophie, Maître de conférences à l'École des hautes études, Lauréat de l'Institut. Paris: F. Alcan, 1891. Pp. xii, 628.

The author of this important volume essays a task of no common magnitude. Rarely has there been a greater, or at least a more varied, intellectual outburst than marked the revolutionary era of French history. M. Picavet traces its origin, follows it along the multifarious lines that it took, and seeks to appreciate the abiding value of its results. The industry he displays is immense, and hardly less remarkable the historical and critical insight. Writing also clearly and with force, there is not an aspect of the movement that he does not effectively portray, not one of its hundred figures, small or great, that he does not manage to invest with interest. But it must be added that the very thoroughness of his work over so wide a field has at times a somewhat overpowering effect. And when it comes to looking back upon the whole moving scene, one sighs for index as a means of keeping hold of it all. Why, with all its fine gift of exposition, is the French mind hardly more careful than the German to employ that simple help for making its labours of ready service to the busy student?

The revolutionary movement of thought in France, called Ideological by Destutt de Tracy, one of its chief leaders, has a special interest for us in this country, as M. Picavet is forward to point out. If English thinking has in this generation recovered in France something of the same kind of authority that was yielded before the middle of last century to the thought of Locke, it has

done so in forms that were moulded not least by influences received from France itself. In fact, during the modern period an alternate process of give-and-take between the two countries has always been going on. Locke, who seemed to overcome Descartes in France, had owed more to Descartes than to any other of his predecessors. So the later English psychology, which has supplied so manifest a stimulus to the French activity of mental research at the present day, had its own line of progress, at an earlier time, very markedly affected by the Ideologists. Hamilton was quite right when he signalled the origin, in D. de Tracy, of Thomas Brown's theory of external object, taken up afterwards and developed by J. S. Mill, Prof. Bain and others. The discovery does not seem to have been made by Hamilton till his later days (*Reid*, Note D, p. 868 n.), but already in his early onslaught upon Brown (Art. "Philosophy of Perception," 1830) there is some general reference to the school which he gives Cousin, after Royer-Collard, the credit of overcoming. Such overthrow, in as far as it took place, is but another effect of the interchange of thought between the two countries, since Royer-Collard (from 1811) was stirred to his revolt against the Sensationalist tradition in France by no other than the influence of Thomas Reid. As for the Hamilton of 1830, it is not out of place to add that one cannot easily now read without smiling the tones of portentous solemnity in which he speaks of those high interests of morality and religion which, under Locke's influence, had been wrecked for nearly a century in France till the great Cousin at last stood forth to stay and save. It is not creditable to Hamilton's discernment that he should at any time have let himself be imposed upon by that flighty rhetorician. Had he known, too, a little more intimately the work of those, whether called Sensationalists or Ideologists, whom at that time, apparently, he was content to take at the estimate of their foes, he might have recognised that in Degérando and Laromiguère, then still active, there was as much concern for religion (not to say morality) as the belauded Cousin ever showed; that Cabanis himself, more than twenty years before, had supplemented his scientific inquiries into the relations of mind and body by a grave philosophical argument (*Lettre sur les Causes premières*) for religious interpretation of the universe; and that in the earlier generation Condillac, for all his psychological insistence upon sense, was a most ardent spiritualist and theist.

But wherein lies the distinctive character of the Ideological movement, as we may now understand it with the help of M. Picavet's practically exhaustive research? Less in its method, which had been applied by others before to the investigation of mind, than in its aims begotten of a time of high humanitarian enthusiasm. It was essentially a revolutionary movement. Education, government, the whole frame of society were to be recast; the renovation being based upon a scientific analysis of "ideas,"

or developed human experience, driven, with that all-inclusive practical purpose, deeper than ever before. The enterprise indeed, even its practical bearings, was not novel. Locke's "way of ideas," which remained the whole method of the French revolutionary thinkers, had for him also a practical, quite as much as a theoretical, significance. And one object, uniting considerations of both theory and practice, namely, the direction and furtherance of the work of special science, had been as present to the mind of Hume as of Locke in their new analytic treatment of human "understanding". But the progress of the positive sciences had come, by the end of the eighteenth century, to exert an ever-deepening influence upon philosophic minds. The French thinkers who, after Condillac, continued to draw their main inspiration from Locke had it forced upon them to make mental inquiry more and more expressly scientific in form, on the model of the other sciences; while yet contending that these others could be systematised and co-ordinated only from the point of view of the mental inquirer. Getting then, after the revolutionary Terror, the opportunity of building upon a ground that had been swept bare, they made it their first practical concern to refound the whole higher instruction of France, and to organise, in the Institute, the means of universal scientific advance. In both departments—of research as of instruction—"Analysis of Sensations and Ideas" (or other equivalent designation) was put forward to mark the particular line of scientific inquiry and consideration that should henceforth take the place of an arbitrary "Metaphysic" in relation to all other actual or possible varieties of human knowledge and endeavour. So may we represent to ourselves, in general, the nature and scope of the movement.

Leaving aside for the moment M. Picavet's introductory question of the "Origins," we may first note the chapter (pp. 20-100) in which he gives account of the Ideologists' "Relations, political and private, academic, scientific, and literary". It is truly a marvel of painstaking research. The work remained for M. Picavet to do, and he has done it once and for all. Nothing that one can desire to know of the new institutions, educational and other, set on foot from 1796, or of the men, obscure as well as prominent, who helped in their founding and working, is here left unelucidated. The class of Moral and Political Sciences, second of three composing the Institute, had but seven years of life before Napoleon, who as General Bonaparte could speak about "ideas" with the foremost (p. 80), abolished it in his pique at being unable to retain the good opinion and support of the philosophical leaders who, in their desire for a more settled political order, had helped him to his supremacy in the State. From that time it was that "Ideologist" became his favourite term of contempt for all those whose serious scientific and social purpose would not bend itself to the service of his personal ambition, and in a depreciatory sense passed readily enough into

currency with many who had been proud to bear the name. But Napoleon's impatience of mental independence did not deprive the school of its means of official utterance before its work has been in effect done. And it needs but an unbiassed study of its chief productions to see that at least the leading spirits, Cabanis and De Tracy, if over-sanguine in their enthusiasms, had no such deficiency of practical sense as the title of their choice was made to imply against them.

The work of the Ideologists is, in effect, summed up in the writings of the two men, Cabanis and De Tracy, and all the more because of their complementary relation to one another; De Tracy confining himself, for the most part, to properly subjective consideration, while Cabanis made it his business to discover the physiological conditions of mental process. But with M. Picavet the work of the two (done within some ten years from 1796) and of those whom they more especially influenced constitutes but one of three stages that may be distinguished within the whole movement. To a later "generation" are referred, with others of less note, Degérando (1772-1842) and Laromiguère (1757-1836), who, though already active by the side of De Tracy and Cabanis in the revolutionary years, did not attain their prominence till a later time, when it was left to them to continue the Ideological tradition in face of the strong reaction that had set in against it, but to continue it in a modified form, at once "spiritualist and Christian". And a "first generation" is made of writers, like Condorcet and Volney, whose work, in conception if not also in execution, reaches back to the pre-revolutionary period and is to be ranked with that of the Ideologists proper because of a general similarity in method and aim.

M. Picavet gives a very interesting chapter (pp. 101-75) to these immediate forerunners, who were all in more or less close relations with Cabanis and De Tracy; but, for the right understanding of the central pair, it is of greater moment to note what he otherwise seeks to establish concerning the origin of their thought. The most obvious question is of their relation to Condillac, the dominant French thinker of the eighteenth century, and this is a question which M. Picavet keeps in view all through his exposition and would very decidedly answer. He speaks with an exceptional knowledge of Condillac, having some years ago edited with characteristic care a part of the *Traité des Sensations*. He has, moreover, for the present inquiry, made an elaborate survey of all prior influences, French or other, that can have affected the Ideologists; though in his book, as printed, some two hundred pages which he had written on this topic have had to be condensed into an introduction of less than twenty. In the result, according to him, it is a grave historical mistake to subordinate the Ideologists to Condillac as master. Though agreeing with Condillac in the general psychological method he had taken from Locke, they criticised him with the utmost

freedom and made claim to have advanced indefinitely beyond his positions. Neither was Condillac himself, from the middle of the century till his death in 1780, by any means the solitary thinker of mark and power in France that he is commonly represented. And when we go back beyond Locke, to whom the allegiance of the Ideologists is undoubted, it is to Hobbes and Bacon, outside of France, that they are seen to stand most near; while, in France, it was at least as much from Descartes as from Gassendi or from the line of sceptics reaching back through Bayle and others to Charron and Montaigne that they drew. In all this contention by M. Picavet there is much freshness of historical insight, and especially noteworthy is the evidence he adduces that never in the eighteenth century did Descartes cease to be an active philosophical force among his countrymen. With the Ideologists, at anyrate, he stood in high credit—in higher credit (it is interesting to note) than with Royer-Collard, the initiator in the second decade of the nineteenth century of that spiritualist reaction which later on was fain to connect itself with his celebrated name. As to the Ideologists' independence of Condillac, however, M. Picavet's proof is not very decisive. It is just as easy to find in the pages of De Tracy and Cabanis professions of discipleship as reclamations against this or that shortcoming of their psychological predecessor. They were in truth very specially beholden to him; but, over and above their novel breadth of practical aim, they had the characteristic—in a remarkable degree for their time—of seeking to connect their thought with the best (as they conceived it) of method or principle that they could find among all the streams of modern inquiry. They looked upon themselves as the crest of the whole advancing modern wave. This confidence is curiously manifested in a criticism on Kant which De Tracy read to the Institute in 1802. Some of it (as given by M. Picavet, pp. 347 ff.) is not at all ill-pointed as special criticism, but more significant is the general judgment passed, as from a higher level, on "les philosophes allemands"—who retain the prejudices of the old school-doctrine, do not know of the observations that have been made in France, take no account of origins, language, method of calculus, but regard the human mind as an abstract thing, &c., &c.

Cabanis and De Tracy occupy between them more than a third of M. Picavet's book (pp. 176-398). His plan is to interweave with accounts of their lives abstracts, more or less critical, of their writings, in order (as far as possible) of composition. The work is done with so much intelligence and sympathetic care that for most readers the abstracts may well supersede the originals, though some can hardly fail to be led on by them to a direct contact with the writers. Cabanis (1757-1808), the slightly younger man, was, as long as he lived, perhaps the more prominent or representative figure of the two, and he lived long enough to cover not only the period of his yoke-fellow's effective authorship

but also the whole time of their school's undisputed influence. He had all the warmth of nature and easy flow of utterance helpful in the impressing and attaching of other men. Though philosophic purpose was never absent, literary production took with him a somewhat wide and varied range. Of scholarly habit from youth, before taking up the medical profession, he wrote early and late both as scholar and as physician; and in his master-work, the *Rapports du physique et du moral de l'homme*, which embodies much of his own medical experience, the literary touch is present in a high degree. It brought together a series of memoirs read to the Institute from 1796, some others being added when the book was made up in 1802. By that time Cabanis, who had been very active in support of Bonaparte's *coup d'état* in 1799, had his disillusionments; and, suffering always from most uncertain health, he appears to have been anxious not to delay bringing out the results of his protracted inquiry and reflexion on the mental relations of mind and body. The book, as it appeared, has much less of system and orderliness than Cabanis would claim for it; but it is more easy to understand the enthusiastic interest with which it was received at the time than the comparative neglect into which it has later fallen. With an expert's knowledge of all that had been discovered or surmised from Hippocrates downwards as to the human bodily constitution, Cabanis set himself to bring it into definite relation with the results of mental introspection pursued in the scientific spirit of Locke and Condillac. By analysis of his own, he was able to bring into view, with more clearness and precision than anybody before him, the whole range of organic sensibility underlying the external senses. Completely overlooked by Condillac, these "internal impressions," the simplest and most truly primordial of all human experiences, reaching back as they must do to the period of foetal life, were first understood by Cabanis in their peculiar psychological significance, more especially in relation to the earliest (apparently) automatic activities. But his merit lies less in a special discovery like this, important as it is, than in his grasp of the general position that, in their relation to bodily conditions and processes, the facts of mental experience are to be taken directly as such, apart from metaphysical construction. The "relations" to be established are purely phenomenal. His clear perception of this fundamental condition of scientific treatment lends a value to his results which is hardly lessened by the imperfect knowledge of the nervous system which belonged to his time. He distinctly anticipated the position at which all psychophysical inquirers now place themselves; and, though in particular unguarded expressions, like that when he speaks of the brain as "*en quelque sort* digesting impressions" and as "performing organically the secretion of thought," he lets himself be overborne for the moment by the obviousness of the physical, yet even in the *Rapports*, still more in the later *Causes premières*, he shows himself well aware

of the unique import of conscious sensibility. The "relations" established are, indeed, for the most part of a very general kind; but this was inevitable at starting. As a general basis for the most developed doctrine of physiological psychology thus far attained, his exposition may still effectively serve. Certainly, nothing in its way so striking has yet been produced by other hand. Nor, for all the undeserved neglect with which he has been treated by later inquirers, has even this been unrelieved. An edition of the *Rapports* (and *Causes premières*), issued in 1844 by L. Peisse, is a model of careful and judicious commenting, all the more valuable because of the perfect freedom of animadversion which the editor feels bound to allow himself. This is the edition to be recommended to the student who wants to go beyond M. Picavet's admirable analysis.

Count Destutt de Tracy (1754-1836) has had still less justice than Cabanis from historians of philosophy. Lewes is almost alone in giving prominence to either, but, while he seizes fairly enough the importance of Cabanis, says nothing to the purpose in his two pages on De Tracy. Yet De Tracy was a very remarkable man, and a thinker whose performance is only less remarkable than his ambition. He now stands very well revealed in the biographical facts and characteristics recorded of him by M. Picavet, to which there is only wanting some more definiteness of detail towards the end. A self-contained man, of high and strenuous purpose, he had already been given to scientific study while playing the gay soldier at court. When the revolution burst, he was forward to resign all aristocratic privilege and range himself with the popular party, though never exaggerating the social and political evils that had to be redressed. Not all his patriotic ardour and self-sacrifice availed to save him from incarceration and imminent peril of death at the height of the Terror. When he escaped condemnation by the fall of Robespierre and was set free again, the studies which he had calmly pursued in prison had brought him so far as to see, by help of Condillac and Locke, that a "science of ideas" was the thing above all needful for the advancement of knowledge generally and for the conduct of life. This accordingly he proceeded to develop, with gradually widening view, in a series of Institute-memoirs from 1796, revised and recast for publication in 1798. He had then hold of his main conceptions, but their practical applications, educational and other, did not become clear to him till he was called to act (1799-1800) on the Council of Public Instruction; and it was with an educational purpose that he then gave to his philosophical views their systematic form in three parts (*Ideology proper, Grammar, Logic*) of *Éléments d'Ideologie*, 1801-5. Later on he added a fourth part, of Economics, and the beginning of a fifth part, of Morals, towards a treatise of "Will and its Effects," as his first three parts had together made up a treatise of "Understanding"; but, though he had still, in 1817, some twenty years of life before him,

his powers were then confessedly spent, and indeed it is hardly beyond 1805 that his philosophical impulse is to be reckoned. Up to that time it worked with freedom and efficiency. Two features of his thought are specially to be noted. (1) It is undoubtedly from him that the import of conscious muscular activity for the psychological problem of object first got distinct recognition. Condillac in France, Hume and Berkeley in England, had (after Locke) each more or less clearly faced the problem ; Rousseau, whose psychological tact (in *Emile*) deserves more acknowledgments than it has got, had descried the perceptual value of the motor factor. But it was De Tracy that first put all together and, though not without some wavering, laid the foundations of a scientific theory which many hands have since helped to rear. To the conception of object as primarily *obstacle*, one finds, on reading, that he had already given the most definite expression ; and there are other points of moment in the theory, as the prior objective character of the subject's own body in relation to all others, which he anticipated with equal clearness. (2) Before Comte, and in a profounder way than Comte, he conceived of human knowledge as an inter-related system of positive sciences. The very designation "positive," which has made its fortune in the present century, is in use with De Tracy and others of the school. Comte, there can be no doubt, took it from that source, and if he had learned also the need of starting with what De Tracy liked to call the "History of our Means of Knowing," his work of scientific ordering might better have claimed its assumed title of Philosophy. Particular ideas, too, commonly regarded as most characteristic of Comte, are plainly foreshadowed in De Tracy or Cabanis. These M. Picavet does not overlook ; and, altogether, he is well justified in placing the great Positivist among the "Auxiliaries, Disciples and Continuers" of the two Ideological leaders.

The hundred pages under this title (399-497), in which he proceeds to muster these, with excellent effect, from all departments of science and literature, can here only be mentioned ; nor can more be done for his final chapter (pp. 498-570) on the "Third Generation," in which are grouped round Degérando (Dugald Stewart's friend) and Laromiguière a number of minor figures, spanning the whole time till with MM. Taine, Ribot and others the movement of scientific psychology in France was started afresh under foreign stimulus. Among the direct adherents of Cabanis and De Tracy the man of greatest mark is Maine de Biran ; the chief interest of his work, however, lying in the extent to which he afterwards broke away from their lead. Him M. Picavet leaves here aside (except in the way of frequent incidental reference), but only to reserve him for special study in connexion with a newly recovered Institute-memoir from the days of his Ideological enthusiasm.

A few pages of "Conclusion" (571-83, followed by some *inedita*

as appendix) are the less to be overlooked, because here M. Picavet does what he can, in other way than by the much-missed index, to bring together the multiplex threads of his whole inquiry. In the last paragraphs of all, there is a striking imagination of the state of mind of an Ideologist transported from the beginning of the century, when he worked so confidently for human enlightenment and progress, to the century's end with its vast increase of scientific knowledge but also increasing sense of the limits set to positive science and its ever-growing burden of social difficulties and perils. The Ideologist, it is allowed, would have to abate much of his practical optimism, and could no longer deal so lightly as he did with philosophical questionings because they had failed of decision. None the less he might truly claim to have done a real stroke of work in his day. He had broken ground in every one of the lines upon which psychology has since advanced,—an effort only partially recognised in the foregoing notice but admirably shown in the book itself. He had also had his own measure of philosophic insight when he proclaimed that all other human search and all human striving should own the sway of a science of " Ideas".

G. CROOM ROBERTSON.

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*Vorlesungen über die Algebra der Logik (Exakte Logik).* By Dr. ERNST SCHRÖDER. Leipzig: B. G. Teubner. Vol. I. Pp. 717.

The appearance of the first volume—a very bulky one—of Dr. Schröder's great work marks an important stage in the progress of Exact Logic. With the exception of the brief former paper of the same writer (*Der Operationskreis des Logikkalkuls*) the subject has hitherto received no presentation in Germany; and, for the purpose of making it accessible to the reader who approaches it for the first time, this presentation is practically the only thing that yet exists in any language.

Mr. Charles S. Peirce, to whom Symbolic Logic owes its present state of development, wrote his papers with the brevity and abstractness that befit a scientific journal. Dr. Schröder's book will be objected to on the ground that it is unnecessarily diffuse; but it should be remembered that the subject has had hard work to get itself recognised, and that it is a principle of psychology that a certain degree of voluminousness in a sensation is essential to the producing of a lasting impression. It must be admitted that the book is discursive to the last degree. On the other hand, it is not undesirable that everything that can be said, by way of elucidation and reinforcement, should once be said; coming books can be written with all the greater conciseness. It goes without saying that Dr. Schröder's book is a work of true German thoroughness, and patience with teasing details; it will

be impossible hereafter for any one to write upon the subject without having made himself familiar with the views set forth in this volume.

The plan of Dr. Schröder in his book follows closely upon that of Mr. Peirce as set forth in Vol. III. of the *American Journal of Mathematics*; that is to say, all the formulæ are established by analytical proofs based upon the definitions of sum, of product, and of the negative, and upon the axiom of identity and that of the syllogism. (Later it is found necessary to add another axiom to cover one of the two parts of the distribution law.) The proofs are, for the most part, the same as those given by Prof. Peirce, but frequently alternative proofs are given in addition, and occasionally the method of treatment varies. Dr. Schröder considers it an important difference between his treatment and that of Mr. Peirce that with him (in this first volume) the letters stand for classes (p. 290), while with Mr. Peirce they stand for statements. This is not a strictly correct account of Mr. Peirce's treatment. The great effect which that writer has had in at once simplifying and extending the whole body of logical doctrine (not merely its symbolic exposition) is based upon his *identification* of the proposition with the relation of implication. It is plain that (provided universal propositions are taken as not implying the existence of their terms) there is no difference between

The statement  $P$  implies the statement  $P_1$ , or, if  $P$  then  $P_1$ ,  
and

The term  $t$  implies the term  $t_1$ , or, every  $t$  is a  $t_1$ ,

*as far as the part they can play in a logical structure is concerned.* The relation between  $P$  and  $P_1$  and the relation between  $t$  and  $t_1$  are both sufficiently defined by saying that they are transitive relations, in the sense in which the term is used by De Morgan; that is (if we use a common sign  $\leq$  to express the common relation), we shall have for a (dual) definition of the relation

$$s \leq p$$

(whether  $s$  and  $p$  stand for terms or for propositions), whatever  $p$  is, that  $s$  shall also be; or, whatever is  $s$ , that shall also be  $p$ . Expressed symbolically, this will be—

$$s \leq p$$

is-the-same-thing-as

$$(p \leq x) \leq (s \leq x) \quad D_1$$

and is-the-same-thing-as

$$(x \leq s) \leq (x \leq p), \quad D,$$

where  $x$  stands for anything whatever. This is, as it happens, in strict accordance with Mill's account of the proposition; he says (*Logic*, eighth edition, p. 135) that it asserts that "all things which have a certain attribute have along with it a certain other

attribute," which is exactly what is asserted in D. Either D or D<sub>1</sub> amounts to a statement of the *dictum de omni* (in one the  $s \lessdot p$  plays the part of a major premise, in the other of a minor premise);<sup>1</sup> and Mill agrees with De Morgan that to give any real meaning to the *dictum de omni*, we must consider it not as an axiom but as a definition. In speaking of the relation  $s \lessdot p$  in words, it is necessary to use the language either of the term or of the proposition; but everything that has just been said of subject and predicate must be taken as having also been said in terms of premise and conclusion, or of antecedent and consequent (for it makes no difference for this purpose whether, in 'S-is-followed-by P,' the following is of a logical or of an extra-logical nature).

While this definition gives all the marks of "all . . . is," or of "is-always-followed-by" that are essential to the building up of the logical discipline, it does not (nor is it necessary to) distinguish them from other transitive relations, such as, for instance, is-an-ancestor-of. It has, I believe, not been noticed that the non-symmetrical negative copula, 'none but . . . is,' is also included in the same definition. The proposition "none but the brave deserve the fair," considered as a statement concerning "the brave," has a distinctive copula, which I have proposed to symbolise thus:  $b \not\lessdot d$ . Now the syllogism (easy in real life but without the pale of the ordinary Logic)—

None but the brave deserve the fair,  
None but those who deserve the fair are happy,  
 $\therefore$  None but the brave are happy—

exhibits exactly the same transitiveness as the syllogism in Barbara. Symbolically expressed, it is—

$$b \not\lessdot f, f \not\lessdot h, \therefore b \not\lessdot h.$$

That is to say, the character of transitiveness is possessed by the negative non-symmetrical copula as well as by the copula "all . . . is".

To return to Dr. Schröder, it is hence not strictly correct to say that in the development of the subject by Mr. Peirce the letters in  $x \lessdot y$  represent statements. After it has been shown that, for the purposes of Logic, there is no difference between the transitive relation for terms and the transitive relation for propositions, it is assumed by Mr. Peirce that in  $x \lessdot y$  the letters stand for either terms or propositions at pleasure. Dr. Schröder,

<sup>1</sup> It must be noticed that the dictum as ordinarily stated is a very insufficient description of the syllogism in Barbara, inasmuch as it leaves out the part played by the minor premise altogether. As it stands, it covers only immediate inference from the universal to the particular; to cover syllogism it should read: "Whatever can be affirmed of the whole can be affirmed of whatever can be shown to be a part of that whole," i.e., of what the minor has affirmed to be a part of that whole.

in his second volume (the advance sheets of part of which lie before us), develops the transitive relation for propositions, after having done it in the first volume for terms. There are marks of difference between the two owing to his assumption that every proposition can have solely the values 0 and 1 (p. 256); that is, that every proposition is (during the limits of the discussion) either always true or always false. But this is a most unfortunate restriction. Why exclude from an Algebra which is intended to cover all possible instances of (non-relative) reasoning such propositions as 'sometimes when it rains I am pleased and sometimes when it rains I am indifferent'? This restriction is the cause of a distinct error on the part of Dr. Schröder. He considers that

$$x \lessdot y + z$$

is of a different content, according as the letters stand for terms or for propositions. It is true that if  $y$  or else  $z$  is said to be a *logical* consequence of  $x$ , then the logical consequence of  $x$  is either always  $y$  or always  $z$  (or both); and it is also true that, on the other hand, 'men are all either honest or else unhappy' is satisfied by some individuals being honest and other individuals being unhappy. But so also any *material* propositional sequence, such as 'If it rains, either I stay in or else I take an umbrella,' is satisfied by some *instances* of its raining being followed by my staying in and all other instances being followed by my taking an umbrella. Dr. Schröder, in fact, seems to pay too little attention to material following. Logical following has its exact parallel in the proposition in the case of the singular subject. 'She is either a queen or a fairy' does not admit of part of her being a queen and part of her being a fairy. There seems, in fact, to be a close relationship between the logical sequence between propositions, and the sequence between terms when the subject is singular. Again, Dr. Schröder, after showing that, for propositions,

$$(a \lessdot b) = \bar{a} + b,$$

that is, that

'If some are not wise, some will be unfortunate' is-equivalent to

'Either all are wise, or else some are unfortunate,' asks, what could be the meaning of this if  $a$  and  $b$  stood for terms instead of for propositions? The answer is very easy. The last sentence is an abbreviated form—made possible by the accidents of language (see my paper on "Some Characteristics of Symbolic Logic," *Am. Jour. of Psychology*, 1889)—for the complete statement,

'All possible cases are included in cases of all being wise together with cases of some being unfortunate,' or,

'The possible' implies that all are wise or else that some are unfortunate'. That is, the full expression for the equation written above is—

$$(a \lessdot b) = (\infty \lessdot \bar{a} + b).$$

When  $a$  and  $b$  are terms, this is—

'All  $a$  is  $b$ ' is-the-same-thing-as 'everything is either non- $a$  or else  $b$ ',

a transformation which is as valid and as simple for terms as it is for propositions.

In his treatment of the signification of the negative term,—a subject upon which very many logicians have gone astray,—Dr. Schröder virtually sets forth the correct doctrine (for instance, on p. 337), but not with quite sufficient constancy or clearness. It is true that there is not much difference between the presence of a quality and the absence of a quality, and hence that the signification of a negative term is of very much the same nature as that of a positive term, *so long as the quality which marks its signification is one and indivisible*. It makes no difference whether we divide numbers up into even and not-even or into odd and not-odd. But the case is very different when we come to complex qualities. We may set forth symbolically the two-fold force of a term in the following fashion : Since the aggregate of objects to which it applies is of the nature of a logical sum, and the congeries of qualities which it implies is of the nature of a logical product, the full import of a term, as civilisation,  $c$ , will be—

$$c = (C_1 + C_2 + \dots) \gamma_1 \gamma_2 \gamma_3 \dots$$

where  $C_1, C_2, \dots$  stand for all the different instances of its application (as the civilisation of the Assyrians, that of the Greeks, and so on), and  $\gamma_1, \gamma_2, \gamma_3, \dots$  stand for all the elements which are essential to its signification (as, being in the possession of good laws, ensuring the safety of the person and of property, securing a certain amount of happiness to a considerable number of individuals, &c.), and where each one of the instances has all of the essential qualities attached to it. What will then be the negative of the term civilisation ? It will be, in accordance with the usual rule for taking the negative—

$$\bar{c} = \bar{C}_1 \bar{C}_2 \bar{C}_3 \dots (\bar{\gamma}_1 + \bar{\gamma}_2 + \bar{\gamma}_3 \dots);$$

that is, the non-civilisations are, at once, not any one of the civilisations, and at the same time they have the quality of *being deficient in some one, at least*, of the qualities that are essential to a thing's being a civilisation (the qualities, that is, in the absence of any one of which we should refuse to apply the name). The intent of the positive term and of the negative term are therefore extremely different ; the one involves a *combination* of quality-elements, the other an *alternation* of absences of quality-elements. It is only in the case of terms of indivisible intent (as hot, cold, blue, heavy, parallel) that the difference between them becomes insignificant. When, therefore,

Lotze "wittily" says, as quoted by Dr. Schröder (p. 99), that it remains a for ever insoluble task to abstract the qualities of the *not-man*, he says what is true but unimportant. *Not-man* is not destitute of intent, as Lotze says it is, but its intent consists in *an alternation of deficiencies of some one, at least, of the elements of the intent of man*. This Dr. Schröder virtually says when he says that the characteristic group of marks of man do not occur in *not-man*, "or not completely" (p. 337). But he does not distinctly state the doctrine that the signification (intent) of a positive term is of the nature of a logical product, while that of a negative term is of the nature of a logical sum.

In Dr. Schröder's discussion, twenty pages long, of the import of negative judgments, there is a greater amount of error mixed up with a large amount of sound and much-needed doctrine. He shows, with justice, that it is a strange oversight on the part of logicians to say that 'A is not B' is the denial of 'A is B'. It is so only in case A is a singular term. 'All A is B' is denied either by 'not all A is B' or by 'some A is not B,' and not by 'all A is not B'. But it does not follow that the *not* in a negative sentence must always be attached to the predicate term. Schröder would discard from logic altogether such sentences as "geese are-not swans," and substitute for them "geese are not-swans"; that is, he would uniformly interpret the sentence as ordinarily printed "geese are not swans" (where the meaning is "no geese are swans"), in the latter sense and not in the former. While the mistake of ordinary logicians is due, as Dr. Schröder points out, to their forgetting, for the moment, the existence of other-than-singular subjects, he commits himself the corresponding error of neglecting the study of non-simple predicates, and of predicates separated by phrases from the copula *are-not*. Take the first negative sentence I come to on opening a volume of MIND: "Moral intuitions are not, any more than intellectual intuitions, simple and original". Here the effort to think the *not* an attachment to the predicate, simple-and-original, is quite futile. It is true that such sentences as "All A's are not B's" are ambiguous, and hence that a strict rhetoric requires us to avoid them; and that, moreover, when they do occur they are usually to be taken in the sense of the particular negative (that is, with the *not* attached to the *all*), as in "All that glitters is not gold". Nevertheless they are of frequent occurrence when the *all* is not expressed but understood; and, moreover, a negative copula is needed for the expression of the proposition "no A is B". Far from presenting any difficulties in a symbolic treatment of logic, the copula "no . . . is" or "is-wholly-not" has two very important advantages over the copula "all . . . is" or "is-wholly". In the first place, it is not necessary, in solving problems, to transpose all the terms into the subject,—there is no (logical) difference between subject and predicate. In the second place, the number of theorems which constitute the body of the doctrine is re-

duced by one half,—a single statement with this copula is the representative of a statement together with its dual opposite in terms of the other copula. These are advantages which are possessed by both of the symmetrical copulas, ‘no A is B’ and ‘all but A is B’<sup>1</sup>; and by neither of the unsymmetrical copulas, ‘all A is B’ and ‘none but A is B’. ‘All A is B’ has, of course, a great superiority in point of naturalness, but the others ought not to be treated as if they were non-existent.

When it comes to the solution of problems, Dr. Schröder discards altogether Mr. Peirce’s method, which consists in a consistent carrying out of the properties of the copula  $\Leftarrow$ , for the far simpler method of first reducing the second member of the statement to “zero,” or “non-existent,”—that is, of transposing all the terms into the first member of the statement. His treatment of this part of his subject could not be improved upon.

A number of interesting points we have left ourselves no room to speak about. Dr. Schröder proves that subtraction and division are inexecutive operations, and that the words are pure nonsense-words in Logic. He also shows that only an historical interest attaches to the labours of Boole in the field of symbolic Logic. A particularly interesting passage is that in which he proves that the second subsumption of the distribution-law, *viz.*,

$$a(b+c) \Leftarrow ab+ac,$$

cannot be deduced from the other axioms and the definitions, by showing that in the logical calculus of groups all these other axioms and definitions hold but that this subsumption is not true. Into that calculus, however, the idea of the negative does not enter; hence it is only proved that the above subsumption cannot be deduced from the axioms and definitions exclusive of the definition of the negative.

CHRISTINE LADD FRANKLIN.

*Spinoza's Erkenntnisslehre in ihrer Beziehung zur modernen Naturwissenschaft und Philosophie.* Allgemein verständlich dargestellt von Dr. Martin Berendt und Dr. med. Julius Friedländer. Berlin: Mayer & Müller, 1891. Pp. xix., 315.

In spite of all that has been written about Spinoza, the authors of this work have contrived to say something new. There are important differences in the theory of knowledge as set forth in Spinoza’s successive works—the *Short Treatise*, the *De Intellectus Emendatione*, and the *Ethica*—and, even in its final form, it is held to be far from clear by most of those who have expressly examined it. I know of no other discussion which can compare

<sup>1</sup> It is virtually in terms of this copula that Mr. Mitchell has developed his Algebra of Logic.

for thoroughness with that of the present writers. They hold that Spinoza's view—hitherto misunderstood or neglected—is not only perfectly consistent, but of the greatest importance for the true understanding of his philosophy: showing especially the harmony of the scientific and idealist aspects of his thought. Much ingenuity, both of argument and illustration, is displayed by the authors in defending this position. A concluding chapter—itself occupying more than a third of the volume—is devoted to a controversial vindication of it. The style throughout is clear and forcible, and the earlier chapters are well adapted to interest the educated public as well as professed students of philosophy. But why, we may be allowed to ask, do German publishers send out books in such a 'questionable shape'? Are German readers too short-sighted to notice misprints? Are page-headings of no value to them? Do they despise a table of contents because they always—unlike Dr. Johnson—read books through?

To the authors, Spinoza is the philosopher *par excellence*. The content of his teaching—apart from its scholastic form—is, they say, in immediate touch with all the problems of our time, and in complete agreement with the results of modern science, the fundamental principles of which he anticipated (pp. ix., xiv.). In works to follow on the Metaphysics and Moral Philosophy of Spinoza, the authors seem to contemplate a complete exposition of Spinoza from this point of view. The present work breaks the ground by its new explanation and defence of Spinoza's Epistemology: especially of the relation between *Ratio* and the *Scientia Intuitiva*, and of the true meaning and importance of the latter. Spinoza, they hold, is the true intuitive philosopher.

Spinoza's official statement of the different kinds of knowledge is given in the second scholium to *Eth.* ii. 40. There he distinguishes the first kind as Imagination or Opinion, got either by the 'experiencia vaga,' which determines sense-perception, or from the spoken or written symbols, which call up ideas of things. To this kind of knowledge belong all inadequate and confused ideas, and it is the only source of falsity. Truth and adequate ideas result only from the second and third kinds of knowledge; namely, Reason and Intuition. Reason depends upon the fact that we have notions common to all men and adequate ideas of the properties of things; Intuition proceeds from the adequate idea of the formal essence of certain attributes of God to the adequate knowledge of the essence of things.

If I may put very briefly the authors' interpretation of this doctrine, I should say that Imagination is the knowledge of every-day life; Reason, the method of science; and Intuition, the exercise of scientific and philosophical genius, of artistic insight and creation. Taken in general, this interpretation seems to me suggestive and valuable; but it does not seem to me capable of being fully reconciled with the spirit or letter of Spinoza's writings.

With regard to the first kind of knowledge, little need be said except with regard to its relation to Reason. Reason, according to our authors, investigates the laws of the material world, seeks a knowledge of the properties not of the essence of things, and uses the method of experimental research (p. 40). It is afterwards added that it has to do with the mental as well as material sciences—the attribute of thought as well as that of extension (p. 178). There is an attractive boldness in making Spinoza's 'Ratio' a pattern of modern experimental method. And the authors have said what can be said in favour of their view. Spinoza was himself keenly interested in experimental research; and the value and necessity of experiment is pointed out in the *De Int. Em.* In that treatise also, the kind of knowledge which corresponds to the 'Ratio' of the *Ethica* is spoken of as twofold in method—either proceeding from effect to cause or drawing a conclusion from some universal. But this kind of knowledge is still regarded by Spinoza as inadequate. The one passage in the *Ethica* upon which the authors rely for their doctrine that 'Ratio' proceeds by observation and experiment is in ii. 29, schol., where the mind's inadequate ideas are said to be due to its being determined externally by the play of circumstances while it has clear ideas when determined from within "by regarding several things at once to understand their agreements, differences and contrasts". But it is not clear that Spinoza is thinking of experiment here. It is certainly not so brought out in the sequel to which he refers. He is contrasting the ideas produced from within with the inadequate ideas produced by 'experiencia vaga'. Spinoza speaks of this latter in very similar terms to those in which Bacon refers to the 'inductio per simplicem enumerationem'; but he does not speak of any sifting experimental process whereby the one—knowledge derived from sense-impressions—may rise to rational knowledge. On the contrary, adequate ideas can with him only proceed from adequate ideas. Thus in *Epist.* 42 (June 10, 1666) he says both that "all the clear and distinct perceptions which we form can arise only from other clear and distinct perceptions," and that these perceptions "are in us and do not acknowledge any cause external" to us. Nor may we forget that in the express definition of Ratio (where it is made to depend upon the fact that we have notions common to all men and adequate ideas of the properties of things) there is no reference to particulars of observation or experiment, but only to that which things have in common, namely, as regards bodies, the attribute of extension, and motion or rest (ii. lemma 2). In face of this, I cannot think that the authors make good their contention that Spinoza's conception of 'Ratio' coincides with the modern conception of scientific method.

These points, however, they try to meet. One consideration which they hardly face is the bearing upon their view of the eternity which Spinoza ascribes to rational method. They lay

stress indeed on the point that reason is said to regard its objects only *sub quoddam eternitatis specie*; but in the same sentence Spinoza says that the objects of reason must be conceived without any relation to time. If we follow Spinoza's view of 'Ratio,' as having only timeless objects, how can we say that it is the method of modern biology or of modern psychology?

Reason may, as Spinoza teaches, lead to a different kind of knowledge which he calls intuitive; but the nature of this intuitive knowledge is left almost entirely unexplained by him. The authors compare it with Habit in the practical sphere, and point to its activity in speculative genius and artistic insight. But the nature of these activities and the way in which they arise out of reason are not very clearly explained by the authors. Nor is it at all certain that Spinoza would have admitted the identification of his intuitive knowledge with (*e.g.*) the stroke of genius by which Kepler reached his conception of the law of planetary motion (p. 58). It would be hard to show that this conception was reached by a different kind of mental process than the other hypotheses which he successively formed and rejected. They were rejected by him and it was preferred, not because it was a stroke of genius, and they were not, but because it explained the facts and they did not. And yet how could the false as well as the true conception be the object of Intuition, seeing that Intuition has only true ideas as its object?

In comparing or identifying Intuition with scientific or philosophical genius, the authors seem to overlook the fact which they elsewhere lay great stress upon, that the object of Intuition is the individual. The following passage states their view with great clearness:—

"Whilst the object of rational knowledge is the mechanical movements of the material world and its laws, on the other hand, the object of intuitive knowledge is the essence of things, the real content of nature and its creatures—which receives expression in these mechanical movements. This content we have recognised to be in Spinoza's view Desire (Cupiditas), the will of beings and their impulse to self-preservation" (p. 99).

This essence,—too, as the authors properly insist,—the force to persist in one's being, is not mechanically determined but proceeds from the eternal necessity of the nature of God (ii. 43 schol.). As they further insist—following indeed closely in Spinoza's footsteps—it must be distinguished from Continuance or Existence which depends on external circumstances. The essence of man is therefore—argue the authors—his character; which is accordingly free and independent. And thus the authors draw the conclusion that when we look upon things not from the merely rational point of view, but with the artistic—and prophetic—glance of intuition, we shall see human characters and even States constantly reborn: Alexander the Great, in Cæsar and Cromwell and partially in Frederick the

Great and Prince Bismarck; while (amongst States) imperial Rome, of course, lives again in modern Prussia. In spite of the length at which and the evident seriousness with which this idea is developed, only one or two points of criticism upon it can be suggested here. In the first place, there is no room in Spinoza's theory for this occasional and spasmodic rebirth. The immortality which is to be found in Spinoza's view of things is eternal or timeless being of particular things. Especially, the idea of a partial reappearance of a particular thing (or man) is entirely foreign to his view. Secondly, it is true that character must be constant and unchangeable, if Spinoza's eternal individuals are characters. It might have been expected that if this were the authors' meaning they would not have used the term Character in its full concreteness; and yet they do use the term so as to include even the passions of man, which must therefore, in consistency, be looked upon as unchanging. In the third place, the basis of the whole speculation is the proposition that the essence of a thing is its tendency to persist in its being. But surely this proposition cannot stand by itself. The essence of a thing is to persist in its being. What then is its being? The authors do not answer the question; but Spinoza's answer is plain. In asserting that in the human mind there remains something which is eternal (v. 23), Spinoza at the same time asserts that this eternal something which belongs to the essence of the mind is a mode of thinking or idea.

W. R. SORLEY.

### VIII.—NEW BOOKS.

*Das Genie.* Vortrag Gehalten im Saale des Ingenieur—und Architektenvereins in Wien von FRANZ BRENTANO. Leipzig : Verlag von Duncker & Humblot. Pp. 38.

This booklet is worthy of its author. It is a masterpiece of psychological analysis. The question discussed is whether the difference between genius and mere talent is one of degree or of kind. In dealing with it a happy application is made of the Cartesian rules—to divide each of the difficulties under examination into as many parts as possible and to ascend step by step from what is simplest and easiest to what is most difficult and complex. Scientific genius is distinguished from artistic and the genius exhibited in imitative art is distinguished from that exhibited in creative art. It is easy to show by the testimony of the great masters of science and by analysis of their work that the intellectual operations of epoch-making discoverers do not differ in kind from those of ordinary men. So far all is plain. The difficulty begins when we turn from science to art. Nearly all great poets, painters, sculptors and musicians agree in ascribing their productions to a kind of inspiration. Is psychological explanation possible in such cases? Can the inspiration of a Goethe, no less than the tentative groping of a Lessing, be accounted for as the result of ordinary mental processes? Brentano thinks that it can. In the case of imitative art the difficulty is comparatively slight. What is essential here is vivid and discriminative vision together with persistent and clear retention of those features of natural objects which are efficient in the production of artistic effect, as distinguished from the irrelevant circumstances by which this effect is impaired and obscured. But this power of selective insight admits of all gradations. It belongs in some degree to many persons who possess no extraordinary artistic gifts. It amounts to genius when it is so rapid, vivid, and complete as to render superfluous the use of rules, and the laborious groping, which seeks its end by repeated trials and failures. For imitative art, then, the difference of genius and talent is one of degree, not of kind. The case of creative art is more complex. But the frequent union of great creative and great imitative powers in the same person points to their fundamental affinity. On closer examination we find them to be connected in so intimate a way that the explanation which has been given for imitative genius may by a simple application of psychological principles be extended to creative genius.

The more distinct and vivid a certain class of presentations is, the more keen and persistent is the interest which they inspire in the subject, the more frequently will they tend to recur in the train of ideas. Further, not only is reproduction aided by these conditions, but production also of *similar* presentations is facilitated. Custom dominates all departments of our mental life. When a circumstance has once made us angry, we become on that account not only more apt to feel anger on the recurrence of the same incident, but also more prone to anger in general. This applies to forms of ideal combination as much as to the ideas combined. One who enjoys epigrams and eagerly listens to them finds that new ones occur to him the more readily for that reason. Similarly we are apt to acquire something of the style of a favourite author apart from any express attempt at imitation. This principle

enables us to connect the creative power of an artist with the vividness of his artistic interest and the keenness of his artistic apprehension. The same power which enabled Mozart at the age of fourteen, after a single hearing of the Miserrere Allegris, to write down from memory the whole complicated work without one error, serves also to account for his greatness as an original composer, who without thinking of rules and without tentative efforts commanded an unfailing flow of new, complex and beautiful combinations.

## EDITOR.

*The present Position of the Philosophical Sciences.* An Inaugural Lecture.  
By ANDREW SETH, M.A., Professor of Logic and Metaphysics in the University of Edinburgh. London and Edinburgh : William Blackwood & Sons.

After a graceful reference to his predecessor, the newly-elected Professor proceeds to examine the special value of Logic, Psychology and Metaphysics, respectively, as instruments of intellectual training. He then considers the "present outlook in the three departments" and "the way in which a philosophical Professor should shape his work at the present time". "If we penetrate beneath the surface and examine the foundations on which Logic rests, it becomes impossible to maintain a rigid distinction between it and Metaphysics and Epistemology. For that reason the very conception or definition of the science has long been matter of keen debate, and at present the aspect of things is confessedly chaotic." But the chaos "is of the kind which portends and accompanies growth, and bears on it the promise of future order". Prof. Seth says a good word for "the ordinary formal logic, originally based upon Aristotle". It has, he thinks, a distinct educational value and "its names and distinctions have entered so largely into the thought, and even the familiar language of the civilised races, that a certain acquaintance with its forms and processes may well be demanded in the interests of historical culture". It is noteworthy that Prof. Seth ignores symbolic logic. What is said about Psychology is of especial interest and value. "It is certain that in the near future no philosopher will speak with authority, or will deserve so to speak, who does not show a competent acquaintance with the best work in psychology." "The marvellous activity displayed" in this department "is perhaps the most notable feature in the present state of the philosophical sciences". Such work as "Mr. Ward's masterly treatise in the *Encyclopaedia Britannica* and the rich and stimulating volumes published a year ago by Prof. James of Harvard" may "not unreasonably be taken as marking the new departure that has been achieved in psychology—the critical maintenance of a purely psychological standpoint, the wider range of material, the more minute and experimental analysis". Prof. Seth has the courage and the insight to say that the "experimental psychologists magnify their office overmuch". The field of experiment is necessarily limited to "those cases where we are able to manipulate the physical and physiological processes which condition mental facts". "Within these limits, the results are often so contradictory as to leave everything in doubt; where definite results are obtainable, their value is often not apparent." This is indeed a word in season. Prof. Seth, however, thinks it "impossible that so much patient ingenuity should be devoted to analysing the sub-structure of our mental life without ultimately important effects upon our knowledge of the psychological mechanism". Turning to Philosophy proper, Prof. Seth declares his opinion that "the outlook is not discouraging".

The time has gone by in which "the vast strides made by science" diverted men's attention from "the problems which lie beneath and behind all science. Among the points on which a true philosophy should lay stress, most prominence is given to the necessity of a teleological view of the universe." "It is only when contemplated in the light of a realised idea that any one speaks of a series of changes as steps in an evolution: a speculation which does not see that evolution spells purpose has not made clear to itself the difference between progress and aimless variation." On the whole this inaugural lecture contains a most luminous and judicious statement of the position and prospects of Philosophy.

EDITOR.

*Le Crime et la Peine.* Par LOUIS PROAL, Conseiller à la cour d'Aix. Ouvrage Couronné par l'Académie des Sciences, Morales et Politiques. Paris: Alcan. 1891 (dated 1892). Pp. 544.

This prize essay has been written by a magistrate with some twenty years' experience. In a prefatory *rappo*rt M. Martha remarks that it is a sober and well-ordered treatise, not brilliant but marked by moral dignity, elevated sentiments, and urbanity towards opponents. This is a very just appreciation. M. Proal's standpoint is non-scientific and non-philosophic; one is at times tempted to describe it as anti-philosophic. The book is an attack on Darwinism and Determinism. With Darwinism M. Proal associates the so-called "positive" school of law connected with the names of Garofalo and E. Ferri, and the Italian school of criminal anthropology connected with the name of Lombroso. With the cause of Determinism, against which the latter half of the book is directed, he associates the well-known names of Herbert Spencer, Fonillée, Guyau, and Tarde. Caro and M. Jules Simon are the writers to whom he himself chiefly looks for philosophic instruction. M. Proal's chief characteristic is common-sense—a somewhat dangerous characteristic. He demolishes Determinism with the same ease with which Dr. Johnson demolished Idealism. He illustrates his own remark that magistrates exhibit "an extreme attachment to common-sense, an excessive love of tradition, and an exaggerated scepticism with respect to new ideas". His book is certainly free from novelties, dangerous or otherwise. At the same time, as the work of a man who has had a long acquaintance with the more practical sides of the matter he is discussing, it is not altogether without value, although this value is for those who are interested in the medico-legal aspects of criminality rather than in its scientific or philosophic aspects. His criticism of the exaggerations into which the criminal anthropologists have sometimes fallen is frequently just, and his position is very sound in opposition to those who try to reconcile the old and the new schools by retaining the conception of penality while dropping that of culpability: either the criminal is guilty and must be punished in a prison, or he is suffering and must be treated in an asylum; to admit that the criminal is a sufferer and then to punish him is to place the magistrate in an awkward and inconsistent position. M. Proal appears never to have heard of the experiments that have been made in the treatment of criminality. He makes no mention of the indeterminate sentence nor of the Elmira Reformatory. He takes it for granted that to regard the criminal as a subject for reformation rather than for punishment is to encourage crime. But—in this country at all events—the criminal frequently dreads the asylum and the workhouse much more than the prison, and will not easily consent to a plea

of insanity. The book is chiefly interesting because it expresses with unusual intelligence and erudition the traditional conceptions of criminality current among lawyers and magistrates.

H. ELLIS.

*Ueber Bewegungsempfindungen.* Von E. B. DELABARRE. Freiburg i. B.: H. Epstein, 1891. Pp. iii., 111.

This investigation,—a Freiburg dissertation, written under Dr. Münsterberg's direction,—is a somewhat disappointing contribution to the literature which deals with the sensation of movement; although it contains good experimental work. The author prefaces his book with a general introduction, which is little more than a reproduction of Dr. Münsterberg's theory of volition. This is followed by a critical discussion of the nature and constituents of the sensation of movement, which is in many ways suggestive, but by no means conclusive. But for a misunderstanding of Wundt's present position, it would hardly have been necessary to devote two and twenty pages to disproving the existence of central innervation sensations: for Loeb's recent revival of the theory has small psychological importance. In the paragraph which deals with muscle-sensations is to be found the common confusion between *Spannung* and *Contraction* or *Verkürzung*. It is to be hoped that the two latter terms will some day be banished from Muscle-physiology, to be replaced by *Erregung*,—which is clearly and definitely distinguishable from *Spannung*. Dr. Delabarre, again, hardly proves his point that the sensation of movement is an "unmittelbare Empfindung," and not a "Vorstellung". In the second part of the research is recorded the author's experimentation upon the exactness of our estimation of the extent of a movement. It was found, in general, that those distances were judged equal whose "sensory elements" were judged equal. Any disturbing influence exercised upon the latter judgment, if it were not apperceived as a disturbance, acted upon the former also. Where the re-agent was conscious of the introduction of a new factor, he always made allowance for it: but such correction was not exact. These rules are valid for the comparison of successive as well as of simultaneous movements. In the former case, of course, the time-error has to be taken into account.

It is to be hoped that Dr. Delabarre will continue his work in this direction. There is much to be gained from such experiments: while those here reported (as the author admits: pp. 91, 103, 105, 107, 110), are in many cases not numerous enough to warrant the drawing of a definite conclusion. It would also be well to put to the test of experimental investigation several points which are taken for granted in the course of the discussion.

E. B. TITCHENER.

*Éducation et Positivism.* Par R. THAMIN. Ancien élève de l'École normale supérieure; chargé du cours de pédagogie à la Faculté des lettres de Lyon, 1892. Pp. iii., 186. Felix Alcan (Bibliothèque de Philosophie Contemporaine).

As an inquiry into the nature of the influence of Comte and his disciples upon education this work occupies a unique position. Comte himself left unfulfilled the promise made in the *Cours de philosophie positive*. Only from his remarks upon Gall and from the general principles laid down in his own writings can we gather what would have been the character of his pedagogy. In all probability the master would

have been dissatisfied with the attempts of his disciples to atone for his silence. Although Comte would perhaps have acknowledged that an encyclopædic system such as his own might well be tested by the method of education deducible therefrom, yet attempts to explicitly formulate such a method have been singularly few. This poverty of positivist pedagogic literature has been commented on by M. Compayré, who tells us in his *Histoire Critique des Doctrines de l'Éducation en France* that Robin's *L'Instruction et l'Éducation* is the only contribution of any importance from contemporary positivists. To this may be added Lallemand's *Education Publique*. We may pass over the attempts of the triumvirate, MM. Littré, Robin and Wyrouboff, to carry their precepts into practice, for the school they started failed, as M. Littré laments, for lack of students, staff, and salaries. If we cast about us for the principles from which the positivist pedagogy may be deduced, we find them in the "law" of the Three States and the classification of the sciences. The hypothesis of the Three States is the parent stock upon which successive authorities have grafted further hypotheses. The classification of the sciences was subjected by Comte to certain restrictions, which, however, have been rejected by his disciples. It is the application to education of these two dogmas, distorted as they sometimes seem to be, beyond recognition, that M. Thamin sets himself to discuss. How is the Law of the Three States applied to pedagogy? According to M. Thamin it is applied in Spencer's adoption of Pestalozzi's principle that the genesis of knowledge in the individual must follow the same course as the genesis of knowledge in the race. There is, he thinks, a fallacy in the identification of these two processes; viz., that of the evolution of the mind of man throughout the past, and that of the education of the individual intellect. "Humanity is not a being but a series, several parallel series of generations, and there are countless interruptions to the continuity of thought." The positive instinct should have prevented positivists from yielding to the temptation to realise abstractions, to treat collectivities as persons, to consider humanity as a single being of regular growth. But assuming the application to be legitimate, the question at once occurs: If heredity marks out the limits and periods of intellectual progress, if evolution does its work as faithfully and inevitably as Spencer asserts (*Education*, p. 76), must not education in most cases be tantamount to the "unconscious carrying out of a programme the combinations in which are anterior to us and escape our influence"? Perhaps Mr. Spencer merely wishes to frustrate the premature attempts of an inexperienced master, and to teach the value of the adage *festina lente*. The danger, however, still remains that masterly inactivity on the teacher's part may be misinterpreted by his pupil. Silence gives consent, and therefore non-intervention is impracticable. And there is the yet further danger that the teacher may mistake the course of evolution and modify the young intellect in the wrong direction. The temptation to anticipate the future would be sometimes irresistible. Why not skip the second state and go on to the third? An experienced teacher might well suppose in many cases that pressure on his part would be the exercise of charitable foresight. Thus, concludes M. Thamin, either the teacher must abdicate his functions altogether, or he must exercise the worst form of intolerance, i.e., methodic intolerance. I think, however, that M. Thamin is probably making too much of Mr. Spencer's section on this point. He evidently has not noticed the remarkable difference between the forcible preliminary statement: "The education of the child *must accord*," &c., and the weaker form of the final summing up: "In deciding upon the right method . . . an inquiry into the method of

civilisation *will help to guide us*". (*Education*, pp. 75, 77. Italics mine.) The application of the dogmas of the classification of the sciences to pedagogy by Littré, Narval, and others is ably handled. Attention is drawn to the wild pretension of the positivists that their system closely follows nature and confines itself to responding to the secret instincts of the intellects they are forming. Mr. Spencer presents us with the paradox that the criterion of any plan of education is that it should excite pleasure in the child, "for a child's intellectual instincts are more trustworthy than our reasons". This, says M. Thamin, is the negation of discipline, method, and "I may add of all progress". The author might have given as the best instance of the concrete results of such a system the experiments at Yasnaya Poliana. Most teachers will, I think, be found to agree with Mr. Spencer's "paradox," if presented in a less dogmatic form. We certainly should be guided to some extent by the likes and dislikes of a child, but experience shows us that it is easy and dangerous to attach too much importance to them. But how far is dislike due to bad teaching?

Although positivism was powerless to carry into practice its principles, it has nevertheless exercised an influence, the more potent because it has been indirect. The classification of the sciences, incapable of giving a plan to education, has given it a *mot d'ordre*—science. The general idea of recent positivism may be summed up as a definition of end and means. "Science the end and humanity the means." The main body of Comte's doctrine has been relegated to obscurity. Positivism was a school; now it is a mere label. M. Thamin proceeds to show how an esoteric positivism was formed, and how doctrines anterior to positivism itself were incorporated by it, thereafter appearing as ramifications from it. For example, "Comte proclaimed himself a disciple of Gall. All modern disciples of Gall, in grateful reciprocity, proclaim themselves disciples of Comte." The introduction of physiology into psychology is positivism. Again, positivism must be utilitarian. Economists, historians, sensualists and empirics are all affected by the same influence. "The formula in which is summed up positivism properly so-called is also a summary of the whole movement of ideas of which the word positivism is now the clearest symbol."

The rest of M. Thamin's volume is devoted to a detailed criticism of the pedagogy of Spencer, Bain and J. S. Mill. To the schoolmaster in this country these studies should be of exceptional interest. In Spencer's *Education* and Prof. Bain's *Education as a Science* we find laid down general principles, the truth of which has never been overtly challenged. In fact, with the exception of the late Mr. R. H. Quicke, it may be said that from a theoretical standpoint no criticism of their doctrines has been forthcoming. Want of space forbids me to discuss the formidable indictment M. Thamin has drawn up against Mr. Spencer. Prof. Bain is more gently handled. The copious detail of *Education as a Science* would naturally give plenty of opportunity for criticism, but M. Thamin confines himself mainly to Prof. Bain's treatment of a few great principles, such as: the doctrine of natural reactions; the value of object lessons; the sketch of secondary studies (pp. 390-396); the classics (pp. 359-387); (Bain, pp. 247-268), &c. The chapter on John Stuart Mill treats of the education of Mill himself, and also of the educational principles laid down by him in his Logic address at St. Andrews, &c. An appendix contains a vigorous assault upon the theoretical and practical positivism which has led to the attack in France upon the teaching of philosophy even in its universities. To sum up. As a contributor to the history of pedagogy, M. Thamin is practically on

untrodden ground. The influence of positivism has been barely touched upon by either French or English writers. The book therefore fills a gap. As a contribution to the question of the respective values of the ancient humanities, modern humanities, and science, as the basis of secondary education, this volume will be welcomed in France; for it appears "at the right psychological moment". Finally, schoolmasters in this country will find M. Thamin a safe guide. We should certainly be grateful to him for his sane, temperate, and convincing criticism of the views of the theorists who have exercised most influence on the educational systems of this country.

W. J. GREENSTREET.

*Causalität und Entwicklung in der Metaphysik Augustins.* I. Teil. Inaugural Dissertation zur Erlangung der Doctorwürde der Philosophischen Facultät der Universität Jena Vorgelegt von JOHANNES CHRISTINNECKE: G. Neuenhahn, Universitäts-Buchdr, 1891.

In this little *brochure* Dr. Christinnecke gives us a brief summary of the cosmological and metaphysico-theological doctrines of Augustine, Bishop of Hippo. Augustine's mission was to prove that Greek metaphysic and Christian dogma could be united in a rational system of the universe. He constituted himself the exponent of the natural philosophers who found themselves at the same time members of the comparatively new Christian community at the commencement of the fifth century A.D. The problem the physicists, or metaphysicians, of the Christian creed had to face was, how to reconcile the abstract theories respecting the origin and maintenance of the order of nature with the account of the Divine procedure of creation found in the Christian Scriptures. The modern man of science has to harmonise theory with fact, but a Christian philosopher like Augustine had to harmonise rational theory with Christian dogma. Of the possibility of the success of such a task he never had any doubt, his maxim was *qui scripturam inspiravit, naturam creavit*. The Author of Nature was the Author of the Scriptures, and, therefore, he who read the one must be able to interpret the other. Augustine had in common with the Platonist metaphysicians for the material of his speculations two orders of being: (1) ideas existing in the Divine Mind as the types or *summa genera* of created things; (2) the various species and classes of the organic and inorganic phenomenal world. The former had their copies in the human intellect and afforded the principles by which the latter were interpreted. God created the phenomenal world. By the creative impulse a chain of necessary causation was set up. Phenomena classified themselves in accordance with primordial types. A potential tendency was given to each class to perpetuate itself. Development is the process by which causal efficiency operates. This potential tendency is the all-pervading principle in Augustine's history of nature, contrasting strongly with the conception of *adaptive agency* dominating modern theories of the origin and development of species. The acorn develops into the oak, the oak sheds its acorns and so the species is perpetuated. But whence was the first acorn and how was it endowed with such potentiality? Here the possibility of having recourse to an order of ideal existences stood the ancient natural philosophers in good stead. Phenomenal classes (*Gattungstypen*) are to ideas as the dividing members are to a logical genus. Dr. Christinnecke considers that Augustine was inclined to carry his theory of *germinal potentiality* informing nature into the Pantheism discernible in the world-soul of Plato (p. 31). Comte and

Mill endeavoured to banish the idea of potentiality from the domain of science, but it persists. We remember Prof. Tyndal in his Belfast address to the British Association alluding to the infinite potentialities of matter. Dr. Christinnecke seems still to cherish this doctrine, which he says (p. 58) is not even contradicted by the accepted theory of Darwin. This remark of Dr. Christinnecke scarcely shows much critical acumen, since the Darwinian theory of the origin of species through the action of adaptation, selection and survival is in direct antagonism to the principle of native potentiality. The problems dealt with in this pamphlet are supremely important alike to scientists and to theologians, and we thank Dr. Christinnecke for so compendious a presentation of them.

T. WOODHOUSE LEVIN.

*University Correspondence College, Tutorial Series. A Manual of Logic.*  
By J. WELTON, M.A. London, B.A. Cambridge, Late Scholar of Gonville and Caius College, Cambridge. Vol. I. London: W. B. Clive & Co., 1891. Pp. 536.

Mr. Welton's work is not a Manual of Logic for students, but rather a compendious book of reference for teachers. Logic is a subject bristling with debatable points. On these Mr. Welton endeavours to focus a mass of current opinions, and his task cannot be regarded as untimely or unwelcome. Mr. Welton has marshalled his authorities with some attempt at reasoned arrangement, but we think he is more apt at collating than digesting material, and he has a disappointing habit of summing up conflicting views with such extreme impartiality that his verdict is practically nugatory.

The scope of Mr. Welton's book does not extend beyond the ancient syllogism, although some notice is taken of the modern amplifications of the theory of reasoning introduced by Hamilton and De Morgan.

Mr. Welton does not claim originality for much in his treatise, but a new method of diagrammatically representing categorical propositions is suggested (in § 106) based on the implications of existence contained in a categorical proposition. This scheme seems a combination of the existential theory adopted by Dr. Venn, and Lambert's mode of representing the extension of a term by a horizontal straight line. In fine, Mr. Welton's book has a *raison d'être*, and although it might have been better done, it is perhaps better so done than not done at all.

T. W. L.

*Die Pädagogik des Helvetius.* Inaugural Dissertation zur Erlangung der philosophischen Doctorwürde. Von DEMETRIUS G. MOSTRATOS. Berlin, 1891. Pp. 56.

This pamphlet sketches the history of the theory of education in France, beginning with the writings of Rabelais, 1495, and Montaigne, 1533. Next, the Method of the Jesuits, 1491, is described, having for its single aim the maintenance of the authority of the Roman Catholic Church. Then follow the Jansenists, 1585, or Port-Royalists, who, although Catholics, had not the domination of their Church so much in view as the development of the individual. For their system the cultivation of the mother-tongue and a knowledge of the contemporary sciences were made the principal objects of study. The establishment of the French Academy by Richelieu in 1585 marks an era in the history of French education. The most notable educationists during the 17th century in France were Bossuet, Flénelon and Fleury, who were suc-

sceeded by Rollin whom Villemain styled the High Priest of Education. In the 18th century we find Diderot propounding an answer to the question, Who ought to regulate and undertake the education of a Community? His answer was, 'The State'. Fénelon had previously announced the same opinion and it was afterwards warmly supported by Helvetius and Robespierre. In 1762 Rousseau's *Emile* appeared, a work in which the principle propounded was that education should develop without perverting the nature of a child. Helvetius, the immediate subject of this pamphlet—1715-1771—formulated a plan of Education in conformity with the psychology of Locke, whose views on the origin and nature of human knowledge, had obtained through the writings of Condillac wide acceptance in France. According to the *tabula rasa* doctrine, the mind received its entire equipment from experience and as in Childhood this experience must be moulded by others, i.e., by education; the art of education acquired a paramount importance in the eyes of Helvetius. Dr. Mostratus gives us the following analysis of the system of education, proposed by Helvetius. (1) Helvetius considers education to be the art of persuading a child to educate itself. (2) The aim of education should be, that subsequently proclaimed by Jeremy Bentham,—the greatest happiness of the greatest number of citizens. (3) The period of education extends over the whole of life, although, of course, childhood and youth are the most important seedtimes. (4) A child's most potent instructor is its environment. (5) The factors of education are:—Opportunity, Attention, Self-love, Desire and Passion. (6) Education must be *physical*, for the development of the body and *Moral* for the inculcation and fostering habits of right conduct; it must commence in the family but generally be completed in public establishments.

T. W. L.

*A Study of Greek Philosophy.* By ELLEN M. MITCHELL, with an Introduction by William Rounseville Alger. Chicago, S. C. Griggs & Company, 1891. Pp. 282.

Miss Mitchell thinks with her German teachers that philosophy is the outcome of the evolution of the human intellect striving to know itself. "What is the world," she asks, "independent of our thought, our representation of it? Is there any knowledge of it distinct from and independent of human self-knowledge?" (Ch. i. p. 3.) On this idealist thread Miss Mitchell proceeds to string the successive phases of Greek speculation from the Ionics to the Neo-Platonists.

The two leading questions determining the direction of Greek Philosophy were, according to Miss Mitchell. (1) "What lies at the basis of all the changes which the senses perceive?" i.e., "What is the substance out of which the world is made?" (2) "How is the world made?" These two questions, she adds, "taken together express the main problem of Greek Philosophy". "How do matter and form unite?" (Ch. ii. p. 6.) The character of the answers given to these questions by the successive Greek schools Miss Mitchell seeks to interpret in a popular manner. Her style is easy and graceful.

*Further Reliques of Constance Naden: being Essays and Tracts for our Times,* with Introduction and Notes by GEORGE M. McCRIE. London: Bickers & Son. Pp. xx., 260.

This volume contains an Introduction comparing Miss Naden with several women most eminent in our literature, with a conclusion which

must gratify those persons who were her personal friends. Part of the Introduction and also several Appendices by writers other than Miss Naden are devoted to expounding and supplementing her own expositions of Hylo-Idealism. Sixty pages are occupied by her essay on the Geology of the Birmingham District. There is a paper defending Utilitarianism against Mr. Lilly, one on the Evolution of the Sense of Beauty, and one on Religion, the lesson of which last is that modern science and Hylo-Idealistic psychology demand that we must "banish all transcendental phantasms from our positive creed to the domain of poetry and art". Philosophic readers will however be chiefly interested in some "Philosophical Tracts" explaining more directly her conception of the mission and result of Philosophy. Philosophy is "the science which takes for its subject-matter the whole sphere of consciousness, and has for its object the detachment and systematisation of the ultimate principles of thought and conduct, and the exhibition of their point of unity". Mental and moral philosophy are one : for the empirical laws of logical procedure and those which constitute our working concept of duty, "must be shown to spring from one central law of reason".

In a tract on Transcendental Psychology she criticises T. H. Green's doctrine that there must be some unit other than feelings and relations between feelings, namely, the subject. She holds that the complete synthesis, which from one point of view may be called the universe, from another point of view the ego, is the only real unit. Further tracts follow under titles including Scepticism, Cosmic Identity, and Scientific Idealism. Cosmic Identity she defines as constancy of relation, and regards as the fundamental truth of philosophy.

The reliques as a whole present the same characteristics as the volume entitled *Induction and Deduction* did ; freedom and felicity of expression, and seriousness of moral purpose. Miss Naden had developed her style by poetical composition ; and she believed that philosophical doctrine could influence the moral purposes of individuals, and the course of social movements.

*Manual of the Science of Religion.* By P. D. CH. DE LA SAUSSAYE, Professor of Theology at Amsterdam. Translated by Beatrice S. Colyer-Fergusson (*née* Max Muller). Longmans, 1891. Price 12s. 6d.

The Science of Religion as here treated exhibits the human mind in phases which no mental science has a right to neglect, now that the historical method has vindicated itself. Professor De La Saussaye has adopted the method of stating the prevalent opinions upon these general problems and then adding his own decision. These judicial deliverances lay him open to the charge of usurping a sort of Chief Justiceship, but they are so modestly stated that we think his procedure justifies itself, as at least imparting a tone such as is indispensable in any effective teaching. Amongst the topics which come under brief treatment in this way are the Sufficiency of the mechanical theory of Evolution as applied to the history of religion ; the question of the relative priority of morality and religion ; the relative functions of the subjective and the objective factors of human experience ; and others. Brief as the treatment is we think M. De La Saussaye has succeeded in his attempt to give an intelligible outline to the Science of Religion, coherent in itself and full of suggestion. After the general outline of the Science of Religion, an excellent summary of the chief contents of Religious system is given under the designation *Phenomenology*, which occupies about one-fourth of the volume, and deals generally with worship and its objects, Institu-

tions, such as Sacrifice, Prayer, Sacred Seasons and Places, and the Forms of Religious Doctrine. Here, again, the conclusions of eminent workers in the field are stated and to some extent compared and estimated. This section is so happy a combination of succinctness with copiousness that we are inclined to consider it the part of the work likely to be of most service to the general student.

Then begins the treatment, under the title of *Ethnographic Section*, of the actual religious systems of history; the first division of this giving a rapid survey of the religions of communities which preceded the civilised nations or which still continue in independence of them. This is perhaps the least interesting section as here treated, for less than a hundred octavo pages could hardly be expected to do much for so varied and manifold a subject. The remainder of the volume—about one half—is occupied with the first instalment of the purely *Historical Section*, and covers the Religions of China, Egypt, Babylonia and Assyria, and India. So far as it goes the volume is complete, but a gentle threat is uttered by the Translator, that the remainder of the work will remain untranslated if this first portion does not seem to meet any real demand.

The bibliography of the subject is very amply worked out: not only before each Section are the general authorities given, but before the several Chapters references are given to the specific authorities. The contributions of German, French, Dutch and English publishers, scholars, and anthropologists, are taken impartially into view and a clue is thus provided to a literature of almost unmanageable extent and variety. The translation forms a very good scientific style in itself, but we have not compared it with the original and do not therefore vouch for its accuracy. A few Germanisms occur, causing some sentences to require a second reading: but they are not numerous, and perhaps serve a useful purpose in reminding us of the authorship of the book. We would not discourage the preparation of the second volume, but there can be no doubt that to the general student the continuation of the historical section will not be of so much interest as the General Introduction and Phenomenology in this volume which, as the Translator allows, ‘forms a book by itself’.

A. CALDECOTT.

*The Human Mind. A Text-book of Psychology*, by JAMES SULLY. 2 vols. London: Longmans, 1892. Pp. xvii., 501, 390.

“The present work is an expansion and further elaboration of the doctrine set forth in the author’s *Outlines of Psychology*. Although the mode of arrangement and of treatment will in the main be found to be similar, the book may be described as a new and independent publication. It is specially intended for those who desire a fuller presentation of the latest results of psychological research than was possible in a volume which aimed at being elementary and practical. Hence much more space has been given to the new developments of ‘physiological’ and experimental psychology, to illustrations of psychological principles in the phenomena of racial and animal life, of insanity and hypnotism. At the same time, an effort has been made to illustrate the obscurity and debatableness of many of the problems of the science, and to aid the reader in arriving at a judicial conclusion on these points by historical references to the main diversities of doctrine. In this way it is hoped that the treatise will find its proper place beside the *Outlines*.” (Communicated by the Author.)

## IX.—PHILOSOPHICAL PERIODICALS.

**PHILOSOPHISCHE MONATSHEFTE.** This number begins with G. Schneegeli's second and concluding article on Goethe's "Verhältniss zu Spinoza und seine Weltanschauung". Goethe like Spinoza regards God as impersonal and as immanent in the world. But this impersonal immanence is not conceived by him in a strictly Spinozistic sense. God for Goethe was not merely the logical ground of all existence, but a creative activity positively revealed in the concrete variety of the world. Again he differs from Spinoza in holding God to be essentially unknowable except as He reveals Himself in nature and in man. This revelation is essentially teleological. God is in nature as immanent self-realising purpose. Each individual exists for its own self-development, and its self-development is the self-manifestation of God in it. God is unknowable except as thus revealed in the world which is perpetually created and sustained by His indwelling purposeful activity. The primal phenomena of nature and of moral experience are also beyond the range of knowledge. In this metaphorical resignation Goethe approaches Kant as in his ethical resignation he approaches Spinoza. The consequence of ethical resignation is with him as with Spinoza inward peace. But the inward peace of Spinoza was constituted by adequate knowledge, that of Goethe by unselfish activity in the service of man.—"Wilhelm Wundt's System der Philosophie," Johannes Volkelt. Wundt's theory of the primacy of will is keenly criticised. The derivation of all cognitive and rational consciousness from the interaction of volitional activities which are in themselves devoid of all content is rejected as absurd. The individualism of Wundt is also assailed. Thus his account of the unity of human society is said to be inadequate, because it leaves no place for laws governing the spiritual development of the community as such and distinct from those which govern the spiritual development of the individual as such. The same criticism is applied *mutatis mutandis* to Wundt's account of the ultimate unity of the universe, as constituted by the combination of an infinite multiplicity of interacting units of volitional activity. It is urged that the rational order of the world presupposes a universal immanent reason, for which there is no place in Wundt's System. In general the Wundtian philosophy is characterised as not "logistic enough". It is in fact a monadistic Schopenhauerism.—Dr. Lipps in his "Zweiter ästhetischer Litteraturbericht" notices among other works, "*La Morale dans le Drame, l'Épopée et le Roman*," by L. Arreat; "*L'Art au point de Vue Sociologique*," by Guyau; "*L'Esthétique du Mouvement*," by Souriau; and Richard Maria Werner's "*Lyrik und Lyriker*".—As against Arreat, Lipps maintains that no peculiar aesthetic effect is produced by the form as distinguished from the matter of a work of art. "A painting which stands in a dark corner produces no artistic effect. I give it a suitable position and place it in a suitable light. Artistic effect is the immediate consequence. What is it due to? Is it to be referred to the appropriate light, or to my art in bringing the appropriate light to bear upon the picture?" The theory which makes "form of combination the source of distinctively aesthetic enjoyment, ought logically to adopt the latter alternative. On Guyau's treatment of aesthetics from a sociological point of view, Lipps observes: "What is considered and interpreted from the point of view of something else

ought in the first instance to be considered from its own point of view. . . . Before assigning to it its place in a more general and comprehensive system, we must determine what it is in its own intrinsic nature. . . . This is forgotten by Guyau and by many others who with good reason place all kinds of objects, especially those which belong to Psychology, in a social or sociological, a psychological, a biological, an evolutionary point of view. They look at their objects from this or that standpoint without knowing what it is they are looking at." Lipps by his detailed criticism justifies this general accusation. Souriau is praised for making detailed studies of particular aesthetic problems instead of confining himself to the empty generalities which satisfy many writers. On the other hand he is blamed for attempting to explain psychological facts by irrelevant physiological and physical considerations. Lipps challenges Souriau's view that we seek the pain of effort for the sake of the pleasure of relief from effort. He maintains like Dr. Ward that pleasure has its source in an economy of psychical activity. Successful activity as such is pleasant. So far as it is obstructed by obstacles which it fails to overcome, it is painful. Dr. Lipps himself, in conjunction with Rich. Maria Werner, is issuing a series of "*Beiträge zur Ästhetik*". The first instalment of this series is Werner's "*Lyrik und Lyriker*," which investigates the stages and laws of growth of a lyrical poem in the mind of the poet. The data used are the poems themselves, the testimony of the poets as given in their diaries, letters, and conversation, as well as the reports and researches of others. The second contribution is *Der Streit über die Tragödie*, Von Th. Lipps. It is according to the author's account predominantly polemical being directed against all attempts to read into tragic poetry preconceived philosophical theories instead of adopting a purely objective point of view.—Friederich Jodl's *Geschichte der Ethik in der neueren Philosophie* is reviewed by J. Keryenbühl.—Stein's "*Leibniz und Spinoza*" is criticised by J. P. N. Land. The substantial merit of the book is admitted, but a number of minor inaccuracies are pointed out.

PHILOSOPHISCHE MONATSHEFTE.—XXVIII. Band., Heft 1 u. 2. E. v. Hartmann, zum Begriff der unbewussten Vorstellung—M. J. Monrad, Ueber das Gebet:—F. Tönnies, Werke zur Philosophie des sozialen Lebens und der Geschichte, Erster Artikel (H. Spencer, Sociologie, Bd. iii.). [An interesting exposition and criticism.]—Recensionen—Literaturbericht, etc.

PHILOSOPHISCHE STUDIEN.—Bd. vii., Heft 3. W. Wundt—Bemerkungen zur Assoziationslehre. [An essay called forth by the controversy upon Association of Ideas, which has been raging for the last two years between Lehmann and Höffding. The "laws" of Association are reduced by Wundt to those of Contiguity and Partial Identity.] A. Kirschmann—Die psychologisch-ästhetische Bedeutung des Licht-und Farben-contrastes. [An investigation into the significance of light-and colour-contrast for painting. The skilful use of contrast enables the painter to reproduce with the nearest approach to truth natural effects which, in their absolute relations, are entirely out of his reach.] O. Külpe—Das Ich und die Aussenwelt (i.). F. Angell—Untersuchungen über die Schätzung von Schallintensitäten nach der Methode der mittleren Abstufungen. [An important contribution to the discussion of psychophysical method. The method of doubled stimuli, and the *Verhältnishypothese* of the dependence of sensation upon stimulus (so far as it is based on the methods of mean gradations and of doubled stimuli) are excluded, it is to be hoped finally, from the sphere of psychophysics. The results of Prof. Angell's experimentation (obtained with Starke's

apparatus: *Phil. Stud.* iii. pl. 3) conformed pretty exactly to the requirements of Weber's law.] G. Martius—Ueber den Einfluss der Intensität der Reize auf die Reactionszeit der Klänge. [A continuation of the writer's previous work "Ueber die Reactionszeit und Perceptions-dauer der Klänge" (*Phil. Stud.* vi.), prompted by Prof. Stumpf's criticism. The special question here investigated is the influence on reaction-time of the strength of the stimulus. It was found that, in spite of differences of intensity in the stimulus, the time of reaction for practised and attentive observers remained the same within a tolerably extensive portion of the musical scale.] A fuller discussion of the first two and last of these articles will follow in the next number of MIND.

[E. B. T.]

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE.—V. Band., 1 Heft. In a second instalment of his "Beiträge zur Geschichte der englischen Philosophie" Herr Freudenthal gives a most interesting account of Sir William Temple. Temple was born in 1655 and entered King's College, Cambridge, in 1578. After three years blind worship of Aristotle he became convinced of the weakness of the scholastic logic and in 1580 he attacked it in a polemical work directed against his old teacher Everard Digby. This was followed by a series of other writings in which he assails the current Aristotelianism. Aristotle's Physics, Metaphysics, and Ethics are criticised with great zeal and acuteness from the standpoint of Ramus. The fundamental conceptions of the *Physics* in the doctrine of causes, the account of privation, the discussion of motion, time and space, are according to Temple incoherent and untenable, and the topics treated in it belong properly to Logic. He deals with the *Metaphysics* in like manner. His criticism of the *Ethics* is specially interesting because in it he is not dependent on Ramus, who had only touched on ethical questions in a few scattered remarks not utilised by Temple. The points assailed are the division of virtues into intellectual and ethical, the distinction between the faculty which apprehends necessary and that which apprehends contingent truth, the identification of the highest good with activity of the intellect, the doctrine of the mean, and the list of special virtues. We find in Aristotle "pro summo bono summa pene miseria, pro morum probitate singularis impietas; pro eleganti praeceptione frigidæ quæstiunculae".

Temple like Ramus believed that he had shaken himself free from the fetters of scholasticism. But in this they were both self-deceived. It did not enter the mind of either master or disciple to call in question the fundamental principles of the system, which they opposed. Thus Temple holds that the content of the general concept constitutes the essence and existence of particulars. From the immanent concept of man, the particular men—Socrates, Plato, Cicero—derive both matter and form. The form is the real essence of things. Universals form the only proper object of science and deduction is the only scientific method. A is more knowable than B if A is required to explain B. Thus "causa effecto absolute clarior est"; "sic in physiologia elementum notius est quam meteora, metallum, planta, quia declaratio et cognitio ex elementorum doctrinâ repetitur". The writings of Temple and of Digby help in large measure to clear up the obscurity which veils the beginnings of English Philosophy. On the one hand we find at this period an attempt to revive scholasticism by the aid of Aristotle,—a scholasticism which was however modified by admixture of mystical elements. The chief representative of this tendency is Everard Digby. On the other hand there is the anti-scholastic movement of the disciples

of Ramus, who attack Aristotle and demand a science of nature and of life instead of futile quibbles. The most important exponent of this way of thinking was William Temple. Both Digby and Temple show a wide acquaintance with the contemporary philosophical literature of Europe. The works of Temple as well as the letters of Ascham bear eloquent testimony to the close intercourse then subsisting between learned men in England and their confreres on the continent. Temple was successively secretary to Sir Philip Sidney, to Davison, and to the Earl of Essex, and he was a favourite of Cecil. He therefore belonged to the social circle with whom Bacon was most intimately connected. "No one can now determine who cast the first spark of new philosophical ideas into Bacon's inflammable mind; but it may be safely assumed that his long intercourse with so clear, learned, and stringent an opponent of scholasticism as Temple must have nourished and strengthened, if it did not create, his aversion to the dominant philosophy.—Dion Chrysostomos als Quelle Julians. Karl Prechter—Leibniz über das Principium indiscernibilium. C. I. Gerhardt. [Contains a hitherto unpublished letter of L. on this subject.]—Zur Echtheitsfrage des Dialogs Sophistes. Ernst Appel—Nachträge zur Disposition der Memorabilien. A Döring—Platon und Aristoteles bei Apollinarios. Johannes Dräseke—Jahresbericht über sämmtliche Erscheinungen auf dem Gebiet der Geschichte de Philosophie.

In the INTERNATIONAL JOURNAL OF ETHICS (Oct. 1891), Prof. L. Schmidt writes on 'The Unity of the Ethics of Ancient Greece'—a paper somewhat too slight for the question discussed, which does not admit of a simple answer—and Prof. A. Fairbank writes on 'The Ethical Teaching of Sophocles'. Dr. F. Adler discusses the practical 'Problem of unsectarian moral instruction'; his solution is that moral instructors in State schools should teach—pedagogically and not as the preachers—the rules of duty accepted by "all good men," leaving the question "why one ought to do what is right" to be answered by philosophers and theologians. Prof. J. Platter's article, however, on 'the right of property in land' reminds us that "all good men" are not agreed on the practical application of the eighth commandment. Prof. Platter does not hold with Mr. Henry George that landlords ought to be at once expropriated without compensation; but he has no doubt that private property, being the product of "force, war, and oppression," will become immoral as soon as the productivity of labour becomes sufficiently high. Prof. H. C. Adams on the other hand, in a politico-economical 'Interpretation of the social movements of our time,' contemplates private property as stable; but considers that "the ethical sense of society must be brought to bear on business affairs, and must in many cases supplant the competitive principle"; and he looks forward to the realisation of "industrial liberty" by restraints on the now "irresponsible power" of capitalists. From the point of view of ethical theory the most interesting articles are those on the 'Theory of Punishment' by the Rev. H. Rashdall, and on the 'Prevention of Crime' by Dr. F. Tönnies. The former is a lucid and careful defence of the utilitarian view of punishment recognising elements of truth in the retributive view. Dr. Tönnies' paper shows grasp rather than lucidity: but his criticism of existing penal law—whether regarded as retributive, deterrent or reformatory—is penetrating if too sweeping. His view of penal law as it ought to be, in which Disablement and Reparation appear to be the main ends, will be more fully explained in subsequent papers.

VIERTELJAHRSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE, XV., ann. 4.—H. Höffding, die Gesetzmässigkeit der psychischen Activität.—This is a discussion of the free-will question. Indeterminism according to Höffding has its source in a psychological illusion and in an ethical fallacy. The psychological illusion is accounted for by five conditions. (1) Exclusive interest in a final decision of the will makes us forget the processes which led up to it. (2) When our minds are once made up there follows a sense of inward harmony and freedom from restraint, which excludes the thought of determining conditions. (3) If, nevertheless, we do succeed in recalling our previous state of suspense, we are apt to realise the past so vividly that rejected lines of conduct again appear to us as possible alternatives awaiting our decision. We thus fail to judge them in the light of the event which realised only one of them. (4) Our mental condition in the moment in which we look back with remorse to a past deed is widely different from that in which we framed the resolution to act. It is difficult to identify our present with our past self. It is often the easiest course to transfer to our past condition some of the characteristics which belong only to our present. There thus arises a tendency to attribute to the past self at once the impulse which formerly led to the regretted decision and the impulse which now leads us to regret it. (5) In deliberation the future appears to us in a twofold light; on the one hand as it would be affected by a certain action; on the other as it would turn out apart from this action. Our attention oscillates between these pictures, and this mental oscillation leads us by a fallacy of confusion to regard the future as really indeterminate. The *ethical* fallacy arises from a false view of responsibility. When we say to man: 'You ought to have decided in such or such a way,' this deliverance by no means rests on determinist assumptions. We only represent to the man the contrast between his actual volition and that which he must himself recognise as the right volition. In this sharp contrast there lies a spur to the will. Ethical judgments of approval and disapproval have practical value only in so far as they become *motives*. Now determinism is the doctrine of the complete *motivirtheit* of the will. It is therefore difficult to see how determinism can be irreconcilable with ethical principles. E. Grossé—Ethnologie und Ästhetik. A powerful plea for the analysis of the conditions of aesthetic judgment and investigation of the growth of aesthetic activity among primitive races. In this way only, it is urged, can simple data be found. At present Ästhetik is baffled by the bewildering complexity of civilised art. F. Rosenberger—Ueber die fortschreitende Entwicklung des Menschen-geschlechts (erster artikel). It is contended that as in the individual, so in the race, growth in knowledge involves growth in the power of acquiring and extending knowledge. The whole argument is based on the assumption that acquired modification of brain-structure are transmitted by heredity. A. Marty—Ueber Sprachreflex, Nativismus u. Absichtliche Sprachbildung. A severe criticism of Steinhalt's account of Humboldt's position and significance in the development of thought on this subject. M. Offner—Ueber Fernwirkung und anormale Wahrnehmungsfähigkeit. An interesting account of M. Richet's experiments on clairvoyance. The writer makes out a good case for the hyperesthesia hypothesis. H. Höffding has a long and interesting notice of W. Boein's book on "*Ludwig Feuerbach, sein Wirken und seine Zeitgenossen*".

PHILOSOPHISCHES JAHRBUCH.—Bd. iv., Heft 4. Gutberlet—W. Wundt's System der Philosophie (Schluss). Sinzheimer S.—Beleuchtung

einer philosophischen Kritik der optischen Wellentheorie. Thill—Das Fundamentalprincip aller Wissenschaften. Michel—Die Kosmologie des Moses Maimonides und des Thomas von Aquino in ihren gegenseitigen Beziehungen. Recensionen und Referate. Zeitschriftenanschau. Miscellen und Nachrichten.

RIVISTA ITALIANA DI FILOSOFIA.—An. vi, Dit. 2. L. Ambrosi—L'immaginazione nelle sue relazioni normali e morbose colla sensibilità. P. D'Ercle—L'origine indiana del pitagorismo secondo. A. Piazz—Luigi Vives, pedagogista del rinascimento. S. Ferrari—La filosofia di Empedocle. Bibliografia. Bollettino pedagogico e filosofico. Recenti pubblicazioni.

RIVISTA ITALIANA DI FILOSOFIA.—An. vi, Dist. 3. A. Nagy—Lo stato attuale ed i progressi della logica. P. D'Ercle—L'origine indiana del pitagorismo secondo. L. Ambrosi—L'immaginazione e l'inconscio nella vita pratica e nella scienza. G. Fontana—Sull' Estetica. Bibliografia, &c.

REVUE PHILOSOPHIQUE—Oct. 1891.—The first article is devoted to a criticism of Preyer's "law of the conservation of life" by S. Errera. Next comes a long and interesting essay "De la Possibilité d'une Méthode dans les Problèmes du Réel". In two previous articles the author had reached the conclusion that the existence of a sensible phenomenon implies the existence of a real activity which produces sensation in the subject to which the phenomenon is presented. Starting from this standpoint, he now discusses the possible methods by which the nature of these metempirical realities may be investigated together with the nature of their real connexion which is phenomenally represented by spatial and temporal relations. Only two modes of dealing with this problem are discoverable. In the first the point of departure is our own being as revealed to self consciousness. The world is a unity and the beings which compose it cannot be absolutely disparate from each other. Having direct cognisance of one of them, we may therefore hope to gain a clue to the nature of the rest by analogical reasoning. Now what is most fundamental in our own nature is will. We may accordingly infer that every reality inwardly consists in some mode or analogue, however rudimentary, of volitional activity. But this result, which is all that the purely analogical method can yield, is vague in the highest degree. When we have thus defined real being in the abstract, we are still as ignorant as ever of the special relations by which real beings are connected with each other. We are as far as ever from any explanation of the general features of the phenomenal world by reference to the reality of which it is a manifestation. We have as yet no key to the cosmological antinomies and the nature of God, freedom, and duty. The inference by analogy from our own inward being to other beings is useful but it is quite insufficient. We must therefore have recourse to another method. We must cross-question phenomena in order to force from them the secrets of the real world which they at once reveal and conceal. Analysis of the nature of phenomena leads us to posit a reality on which they depend. By pushing this analysis further we may gain a clue to the internal nature of this reality. The author promises to pursue this line of investigation in an ensuing article. A. Calimon follows with a short article on "Les Espaces Géométriques". After a compact and lucid explanation of the conception of different kinds of space, of which the Euclidean is only one among others, an attempt is made to meet some common objections to such generalisations of geo-

metry. Here the writer implicitly assumes that there is no essential distinction between the evidence of geometrical relations as given in the intuition of space and that of physical uniformities inductively ascertained. He abstains, however, from the familiar question-begging illustrations. Next comes an "Enquête sur les Idées Générales" by M. Ribot. "When a general term is represented, heard, or read, what is there in consciousness besides the word itself—immediately and apart from reflexion?" M. Ribot has questioned 103 persons in order to obtain a "partial and provisional answer" to this question. He thus describes his method: "I said to the subject:—'I am about to pronounce a number of words; I wish you to tell me, immediately and without reflexion, whether each word calls up anything or nothing to your mind, and if it calls up anything to tell me what it is'. The answer was immediately noted down." Out of upwards of 900 replies the most frequent was "nothing," the only sensory image present in consciousness being the sound of the word. In other cases there was an image of some concrete example, which was sometimes accompanied by a visual image of the printed or written word. Sometimes only this typographical imagery was present. According as this or that class of imagery predominated in each individual, it was found possible to refer the subjects to three distinct types—the concrete, the typographic-visual and the audile. M. Ribot is aware that the method of experimenting with isolated words is somewhat artificial, because the unit of ordinary discourse is a sentence. He, therefore, made some trials in which abstract statements were substituted for abstract terms. The results obtained were exactly the same as in the case of detached words. It would seem, however, that in the sentence-experiments, he omitted to investigate what is perhaps the most interesting and important point. He asked his subjects what presentation each sentence as a whole called up, but he does not seem to have inquired what presentation this or that word called up at the moment of its occurrence as a component of the sentence. In conclusion, M. Ribot rightly points out that the reply "nothing" indicates sub-conscious mental process. The "nothing" cannot be really nothing, because the word is *understood*. It is harder to agree with Ribot when he says that persons of the concrete type think by means of their mental imagery, language being with them merely a vehicle of communication. Whether an image is present or not, the all-important "nothing" must be present, and this nothing is dependent on the word.

REVUE PHILOSOPHIQUE—Nov. 1891.—M. Fouillée, in an article on "Les Origines de notre Structure intellectuelle et cérébrale," criticises the Kantian philosophy. He interprets it throughout in a psychological sense, and he easily shows, from an evolutionist point of view, that so interpreted it is quite untenable. To those who have studied Kant under the guidance of Paulsen, Riehl, and Erdmann, such criticism will appear to be very wide of the mark. M. Gourd follows with a paper on "La Volonté dans la Croyance". M. Tarde gives a long report of the recent literature of criminology, in which he notes progress made in Italy by the sociological as opposed to the anthropological and statistical school. The principal books reviewed are Fouillée's "Idées-forces" and Picavet's elaborate work on "Les Ideologues".

## X.—NOTES.

### THE ORIGIN OF MUSIC.

I AM sorry if my article "*On the Origin of Music*" left it to my readers to suppose, that Mr. Spencer does not adequately recognise rhythm in the ordinary sense of the word as an essential component of music, and if I have not been sufficiently explicit in indicating under what specific meaning I wished to speak of it. I meant "rhythm to include keeping in time," that is, in the sense of the German *Takt*. Verse and song are both rhythmical it is true, but it is only the musician who has to keep time, dividing his sonant material into equal bars. This time-division gives music its essential and indispensable character, and the "time-sense" is the psychical source from which it is derived. I never ventured to say that musical rhythm is developed from rhythm in spoken verse; on the contrary, my chief aim was to show that primitive music is chiefly to be found "side by side" with, and quite apart from any kind of speech, the only thing common to both being that both are vocal utterances.

Again Mr. Spencer so much objects to his theory being called "speech-theory," that he treats this phrase of Gurney's as a nickname, and assumes I have not read his writings. When making use of it I had in mind a remark occurring in his article in MIND, Oct. 1890, where he says, that the "distinct tones music uses might be developed from the indistinct ones in speech," and again another remark in his *Essays* (1891, ii. 406), where he speaks of three subsequent stages of the voice, the speaking voice, the recitative voice, and the singing voice. Then again, I remembered how constantly careful he is to quote (in his *Descriptive Sociology*) examples—and such examples only—where 'recitative' is the primitive form of music, and lastly the passage where he says, that the emotions from which music arises "comment upon propositions of the intellect," mentioning intellect as one of the two elements of which speech is compounded (*ibid* 421).

Further Mr. Spencer takes objection that I should credit him with having said, music arises from the intellect, whereas he had named the emotions as its origin. And in stating this he quotes his own words: "We may say that cadence, comprehending all variations of voice, is the commentary upon *propositions of the intellect*". Now it was precisely to this that I took objection, namely, that the emotions leading to music (or, as I put it more directly, music) should be held to arise as a commentary upon intellectual propositions; and I pointed to the physiological fact that emotion and intellect are associated with different parts of the brain and nervous system. The origin of emotions, and consequently of all their resulting products, must be independent of all propositions of the intellect.

With respect to his remark that it is not true to say speech is an expression of thought, I must again refer to those cases of aphasia, where the patient retains the language of the emotions, the power of uttering single words and of singing when the power of speaking connectedly has long been lost. Emotions have unquestionably a language of their own; from them *single words* may arise, but speech, so far as modern physiology and pathology can show, is an intellectual form of expression. Without

the aid of the intellect we are unable to express even our emotions in connected speech, while yet we may command an indefinite number of single words.

Mr. Spencer concludes : "The whole argument of the (his) essay is to show that it is from this emotional element of speech (!) that music is evolved". Certainly, but this emotional element, he says, grows up in proportion to the intellectual (*Essays*, p. 422), the changes of voice grow with the "more numerous *verbal* forms needed to convey our *ideas*". It is this dependence which I call in question ; for the *growth* of the intellectual and emotional language are, physiologically speaking, in no connexion whatever.

RICHARD WALLASCHKEK.

#### EXPERIMENTS ON COLOUR-VISION.

*Fusion of Sensations of Colour.*<sup>1</sup>—The author raises again the question of the central fusion of different simultaneous colour-sensations from the two eyes. He claims to have shown, in opposition to Helmholtz, and in support of Regnault and Foucault, that such fusion is a fact. This claim is based upon the results of experiments with stereoscopic figures whereby different colours perceived, one by each eye, are superposed upon each other. He finds the resulting image to be of the colour arising from the mixing of the two. In using the stereoscope for the purpose, dim light and saturated colours give the effect most clearly—or instantaneous illumination in a dark chamber. The same results may be secured without a stereoscope by focussing the eyes back of stereoscopic pictures at such a distance as to secure clear superposition. The arrangements, precautions, &c., are given in some detail.

*Sensations of colour in one eye resulting from stimulation of the retina of the other eye by coloured light.*<sup>2</sup>—In this paper the writer gives an interesting result arrived at in connection with his experiments on central fusion noticed immediately above (*Comptes Rendus*, 1891, xciii. p. 358). Using the stereoscope with glasses of complementary colours placed before the lenses (a device to avoid colouring the stereoscopic pictures themselves and giving the same results) he secured a white central image in relief flanked on each side by an image coloured like the glass on that side. Removing the glasses quickly he found that these side images exchanged colour—the ordinary after-result of colour stimulation. He then bandaged one eye and after looking into the stereoscope with the other eye, removed the coloured glasses and the bandage, and looked again with both eyes. The result was in all respects the same as before when both eyes had been open before the glasses were removed, i.e., a white image in relief in the centre and coloured complementary images at the sides. This shows the presence in one eye of a coloured image due to the vision by the other eye of the complementary colour : a fact noticed by Fechner and explained by Helmholtz as a case of illusion coming under the head of simultaneous contrast. Chauveau holds, however, that this experiment proves that the image is a real sensation in the bandaged eye,

<sup>1</sup> Chauveau, *Sur la fusion des sensations chromatiques perçues isolément par chacun des deux yeux*, Comptes rend., 1891, xciii., 358.

<sup>2</sup> Chauveau, *Sur les sensations chromatiques excitées dans l'un des deux yeux par la lumière colorée qui éclaire la rétine de l'autre œil*, Comptes rend., 1891, xciii., 394.

since the result is the same as when both eyes have been stimulated by the two complementary colours. In his view the result is brought about by "a reaction of the eye which is stimulated upon the perception-centres".

He supports this interpretation, farther, by an experiment which offers additional evidence of central fusion. If the left retina be fatigued by red light and then both eyes be directed into the stereoscope, the left image has a green cast and the right image a rose cast, while in relief between them appears again the pure white image, due to the fusion of red and green. Further variations of this fundamental experiment are also given. The whole is an important contribution to the main question of central fusion, and indirectly to the theory of central diffusion—"diffusion of sense impressions beyond the functional zone of the particular nerves excited" (p. 394)—to which M. Chauveau is giving more especial attention.

*Antagonism of the Visual Fields.*<sup>1</sup>—M. Chauveau here pursues the general question of interaction between the hemispheres by asking why it is that antagonism takes place between the two retinal fields. He describes this antagonism as "influence brought to bear upon the centre for one retina by stimulations to the other retina". Claiming that this influence is a central influence and not a matter of the actual stimulation of both retinas, he cites the experiments spoken of immediately above. In stereoscopic vision the two side images do not antagonise each other; only the inner half of each, which goes to form the central image, shows rhythm and variation. If the fact of antagonism were due to retinal (peripheral) stimulation, the entire side-images would show it and not merely the adjacent halves where superposition is brought about. He also says that "since the connexions between the two retinas are established only by means of the central nervous system, we are compelled to hold that the antagonism of the visual fields is a central phenomenon". What then is the central mechanism of antagonism? We must suppose connexions between the optic centres, "connexions which bring identical points of the two retinas into communication with each other through the nuclei of origin of the optic nerves". In ordinary vision there is no apparent antagonism, since the two images are identical; but some rhythm is there even then. In the case of non-identical images there is an alternative and reciprocal *inhibition* which gives the resulting image its variable character. In the case of instantaneous illumination there is no time for this inhibition to change its direction, and the image appears fixed. By the same hypothesis he also explains Fechner's experiment, mentioned above. Chauveau's theory of binocular nervous inhibition suggests the facts of a similar kind cited by Binet under the head of psychic inhibition.<sup>2</sup>

*Means of Studying Binocular Contrast.*<sup>3</sup>—A somewhat detailed account of the arrangement, necessary apparatus, and best plane figures, for repeating Chauveau's experiments on binocular contrast. Examples of the stereoscopic figures are given.

<sup>1</sup> Chauveau, *Sur la theorie de l'antagonisme des champs visuels*, Comptes rend., 1891, cxiii., 409.

<sup>2</sup> *L'Inhibition dans les phenomenes de conscience*, Revue Philosophique, Aug., 1890.

<sup>3</sup> Chauveau, *Instrumentation pour l'executer des diverses experiences relatives a l'etude du contraste binoculaire*, Comptes rend., 1891, cxiii., 442.

*Retardation of Luminous Impressions.*<sup>1</sup>—The author observes that when a dark object passes quickly across a white background in the field of vision, bright red colour plays about the edges of the track obscured by the object. He attributes the presence of the red to the retardation of the luminous rays which re-illumine the darkened track—retardation which is least for the rays of greatest wave-length, *i.e.*, red. From an accidental experience of driving past a dark tree seen on a ground of white cloud, he calculates that the red precedes the full white illumination by about '01 sec.

*Retinal Oscillations.*<sup>2</sup>—M. Charpentier finds at the beginning (*début*) of every light-stimulation to the retina evidence of certain oscillations of the retina itself. The negative phase of these oscillations is the more appreciable and manifests itself after about  $\frac{1}{5}$  to  $\frac{1}{10}$  sec. These oscillations propagate themselves outward in the retina from the point excited and give rise to alternate light and dark zones in the field of vision. He brings out these zones by an experiment by which he gets the persistent image of a small white object projected through the field of vision on a whirling disc.

The distance between these bands—say between two successive dark zones—enables him to measure “the apparent length of the undulation as it is modified by the displacement of the object,” a case of *interference* to which Döppler's principle applies: according to which “this determination varies with the length of the undulation proceeding from a fixed object, the velocity of propagation on the retina, and the retinal velocity of the object”. These determinations can be made by varying the velocity of the moving object.

He finds a case of the same negative-oscillation in the *double* sensation which follows an instantaneous or very brief light-stimulation—say a single spark from a Ruhmkorff coil through a Geissler's tube or in the air.

In another paper<sup>3</sup> M. Charpentier pursues the subject farther, making various exact determinations. He finds the distance between two successive “zones” about  $\frac{1}{5}$ : the velocity of propagation of the negative oscillation on the retina, a mean of  $72^{\text{mm}}$ : frequency of oscillations, 36 a second: length of wave of retinal oscillation from fixed object, about  $2^{\text{mm}}$ .

The author farther argues that the phenomenon is due to oscillations of the retina and not to “essential vibrations of the optic wave,” since the results are the same for coloured objects. He connects the phenomena in an interesting way with entoptic vision.

*Chromoscopic Analysis of White Light.*<sup>4</sup>—The great importance of the researches of M. Charpentier on “retinal oscillations” becomes apparent in his attempt in this paper to derive support from them for his theory of colour-vision, announced some years since (*Comptes Rendus*, July 20, 1885). He holds that the sensation of colour results from the presence

<sup>1</sup> Mascart, *Sur le retard des impressions lumineuses*, Comptes rend., 1891, cxiii., 180.

<sup>2</sup> Charpentier, *Oscillations retinienne*s, Comptes rend., 1891, cxiii., 147. Cf. communication to *Société de Biologie*, Mai 10, 1890.

<sup>3</sup> Charpentier, *Relation entre les oscillations retinienne*s et certains phénomènes entoptiques, Comptes rend., 1891, cxiii., 217.

<sup>4</sup> Charpentier, *Analyse chromoskopique de la lumière blanche*, Comptes rend., 1891, cxiii., 278.

of "two simultaneous and harmonious retinal oscillations of different periods. One of the two waves undergoes a variable retardation which has a special value for each colour. In the case of two complementary colours the difference in retardation is half a wave length, which results in the extinction of one of the waves by interference." It is seen at once that the evidence brought by the experiments cited above for retinal oscillations and their subsumption under Döppler's principle, tends to supply the basis needed to this theory. It brings colour perception into close analogy with sound perception—the spectrum with the gamut—and explains colour vision on the general theory of the physics of the summation and interference of undulations. The wave movement gets carried over from the medium into the organ of vision.

In this paper the author presents another phenomenon in support of his theory, *i.e.*, that "luminous excitations of a limited portion of the retina, *made by white light*, appear very clearly coloured . . . provided the stimulation be instantaneous and of very feeble intensity". The experiments by which he demonstrates this are given in some detail. He holds that it can not be due to the simple fatigue which gives coloured vision under successive stimulations, for the conditions are different in many details. It can not be explained by any theory which holds that colour vision is due to the stimulation of special nervous elements, each vibrating to a separate colour (Halmgren, Helmholtz), because it holds when a portion of the retina (6mm. in diameter) is stimulated containing numbers of rods and cones : the "colour remains uniform throughout the whole extent," although in different experiments this colour may itself vary. The author explains the phenomenon by the supposition that the retina is constantly run over by oscillations varying in its different parts ; the new stimulation comes to be added to one of these, and, if not too intense, gives the appropriate colour, but only for an indefinitely short period, for all the other oscillations by which the retina is agitated come also into play at the point in question, and by their mutual interferences give white light. The author propounds this only as an *ébauche de théorie*, but it is interesting and important enough to attract the attention of the disciples of Helmholtz and Hering.

JAMES MARK BALDWIN.

**ARISTOTELIAN SOCIETY.**—The Thirteenth Session was opened on 2nd November with the usual Presidential address. Mr. Shadworth H. Hodgson took for his subject "Matter". On 16th November the meeting was held at Jesus College, Oxford—Mr. S. Alexander, V.P., in the chair. The subject was a Symposium on "The Origin of the Perception of an External World" by the President and Messrs. B. Bosanquet and D. G. Ritchie. On 30th November Mr. Arthur Boutwood read a paper on "Dr. Croll's Philosophical Basis of Evolution". The following new members have been elected: Mr. A. M. Daniell, B.A., Miss Millington-Lathbury, Mr. Charles J. Shebbeare and Dr. James Ward.

**INTERNATIONAL CONGRESS OF EXPERIMENTAL PSYCHOLOGY.**—The Honorary Secretaries have sent us the following "Provisional Programme : "The Second Session of the above Congress will be held in London, on Tuesday, 2nd, August 1892, and the three following days, under the presidency of Prof. H. Sidgwick. Arrangements have already been made by which the main branches of contemporary Psychological research will be represented. In addition to the chief lines of investigation comprising the general experimental study of psychical phenomena in the normal human mind, it is intended to bring into prominence such kindred departments of research as the neurological consideration of the

cerebral conditions of mental processes ; the study of the lower forms of mind in the infant, in the lower races of mankind, and in animals, together with the connected laws of heredity ; also the pathology of mind and criminology. Certain aspects of recent hypnotic research will also be discussed, and reports will be given in of the results of the census of hallucinations which it was decided to carry out at the first Session of the Congress (Paris, 1889). Among those who have already promised to take part in the proceedings of the Congress may be named the following : Professor Beaunis, Monsieur A. Binet, Professor Pierre Janet, Professor Th. Ribot, and Professor Richet (France) ; Professor Lombroso (Italy) ; Dr. Goldscheider, Dr. Hugo Münsterberg, Professor G. E. Müller, Professor W. Preyer, and Dr. Baron von Schrenk-Notzing (Germany) ; Professor Alfred Lehmann (Denmark) ; Professor N. Grote and Professor N. Lange (Russia) ; Dr. Donaldson, Professor W. James, and Professor Stanley Hall (United States of America) ; and Professor V. Horsley, Dr. Ch. Mercier, and Dr. G. J. Romanes (England). It is also hoped that Dr. A. Bain, Professor E. Hering, and others, may be able to take part in the proceedings ; and that some, as Professor W. Wundt, who will not be able to attend the Congress, may send papers. As a specimen of the work that will be done, it may be said that Professor Beaunis will deal with 'Psychological Questioning' (*Des questionnaires psychologiques*) ; Monsieur Binet, with some aspect of 'The Psychology of Insects' ; Dr. Donaldson, with 'Laura Bridgman' ; Professor Stanley Hall, with 'Recent Researches in the Psychology of the Skin' ; Professor Horsley, with 'The Degree of Localisation of Movements and Correlative Sensations' ; Professor Pierre Janet, with 'Loss of Volitional Power (*l'aboulie*)' ; Professor N. Lange, with 'Some Experiments and Theories concerning the Association of Ideas' ; Professor Lombroso, with 'The Sensibility of Women, Normal, Insane, and Criminal' ; Dr. Münsterberg, with 'Complex Feelings of Pleasure and Pain' ; and Professor Richet, with 'The Future of Psychology'. A Committee of Reception has been formed, which includes, among others, the following names : Dr. A. Bain, Dr. D. Ferrier, Mr. F. Galton, Dr. Shadworth Hodgson, Professor V. Horsley, Dr. Hughlings Jackson, Dr. Chas. Mercier, Professor Croon Robertson, Dr. G. J. Romanes, Mr. Herbert Spencer, Mr. G. F. Stout, Dr. J. Ward, and Dr. de Watteville. The fee for attendance at the Congress is ten shillings. Arrangements will be made for the accommodation of foreign Members of the Congress at a moderate expense. Communications are invited, which should be sent to one of the undersigned Honorary Secretaries not later than the end of June, and as much earlier than that date as possible. The communication should be accompanied by a *précis* of its contents for the use of Members.—F. W. H. MYERS, Leckhampton House, Cambridge ; JAMES SULLY, East Heath Road, Hampstead, London, N.W."

We have received notice of a new periodical : *The Philosophical Review*, edited by Professor Schurman of Cornell University. The publishers are Messrs. Ginn & Co. (Boston, New York, Chicago, and London). The Review will be issued once in two months, beginning on January 1, 1892. It will contain, "besides original articles, prompt and trustworthy accounts, and estimates of the literature of Philosophy, which will include, not only reviews of books, but condensed summaries of articles appearing in magazines, journals, newspapers," &c. These summaries, instead of being thrown together in the order of original publication, will be classified under the heads : Logic, Psychology, Ethics, Metaphysics, &c., so that a reader interested in any special branch of Philosophy will have regularly presented to him a systematic account of the work done in his specialty throughout the civilised world.